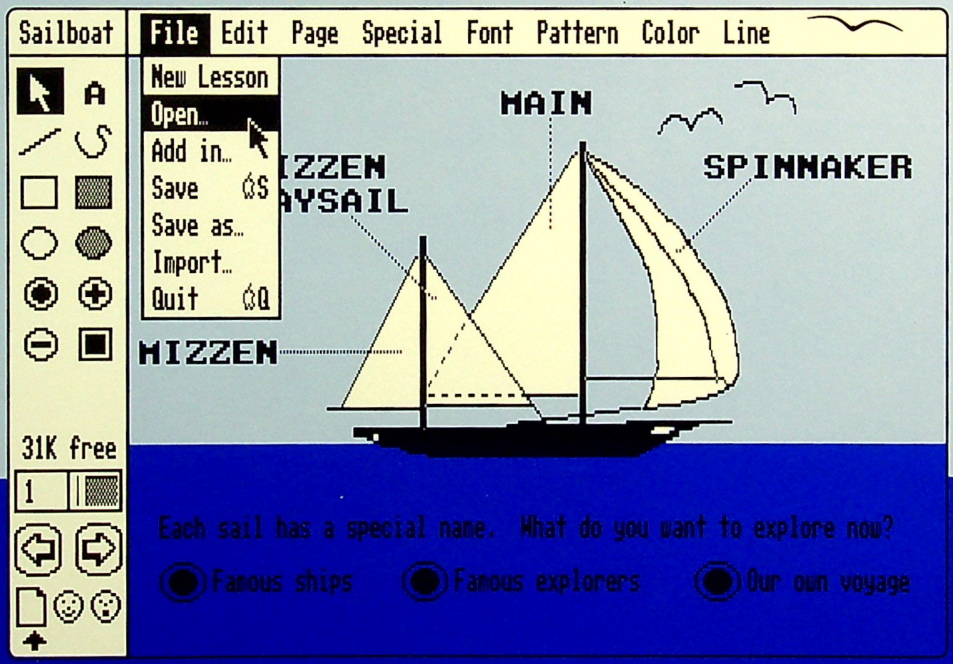
T E C H W A R E

Tutor-Tech™



User's Guide

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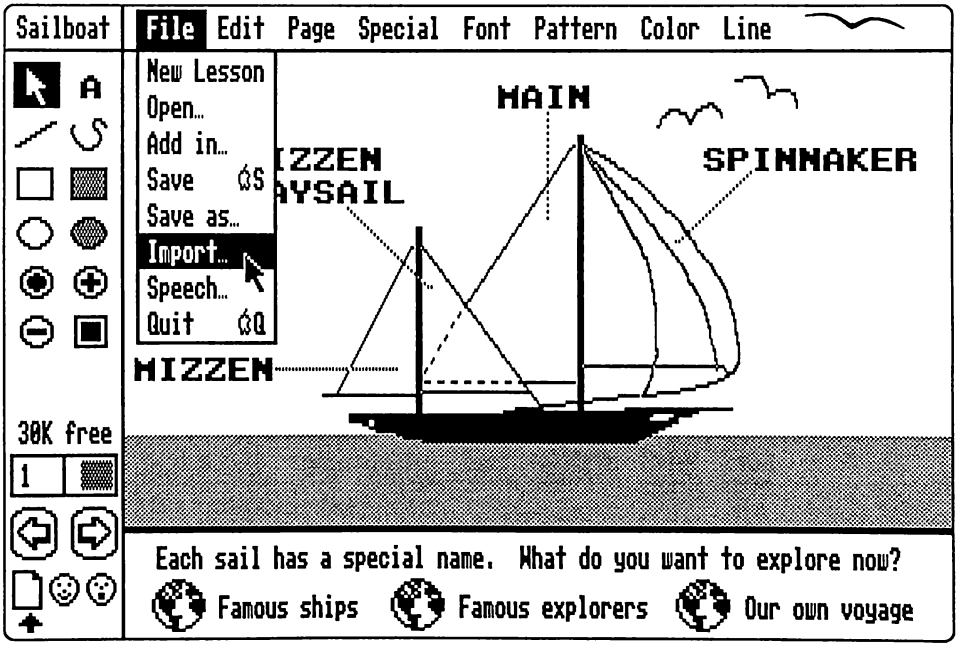
TECHWARE PRESENTS

Tutor-Tech™



User's Guide

Fourth Edition

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Welcome

You are about to harness the true power of your Apple II—the power to associate ideas. Tutor-Tech is the first and only Apple II **hypermedia** product, making it possible for you to put ideas on disk with words and pictures. And connect one idea to another. Without technical skill.

Tutor-Tech makes creating software easy, whether you have computer experience or not. It strongly resembles software for the more sophisticated Macintosh™ computer, so you'll be off and running after learning only a few basic techniques.

No more long commands. No more fighting the computer. Now you can develop your own Apple II software in a free and open environment. Intuitively.

Getting started

1 What you have

The software disks are in the envelope which accompanies this guide. Before opening the envelope, read your Software License (printed on the envelope). Like most software today, Tutor-Tech is licensed to you. You may copy the software only as instructed in this guide and in the license.

- ❖ *Other licenses are available.* Should you need them, we have the software and licenses for computer networks, shared disk systems, and site-licenses. See the *Appendices* for details.

Tutor-Tech has three parts:

- ✓ The **Teacher disk** is for creating (and changing) stacks.
- ✓ The **Student disk** is for presenting stacks on a computer.
- ✓ The **Grader disk** is optional; it can keep a class roll, track individual student performance on stacks, and grade the results automatically.

If you did not purchase the Grader disk with this package, you can do so later. The software envelope will contain only those disks you ordered. However, this guide discusses all three programs, so you can review the Grader disk's features before purchasing it.

2 What you need

Tutor-Tech works on Apple IIe's, Apple IIc's, and Apple IIGS's. Each must have 128K to support the dazzling graphics.

Apple IIe Apple IIc Apple IIGS

- *For unenhanced Apple IIe owners:* the small jumper block must be in place on the keyboard end of your Extended 80 Column Card. It makes displaying super resolution graphics possible (560 pixels across the screen). If you experience any problem while booting a Tutor-Tech disk, check this (power *off* first!).
- *For Apple IIGS owners:* the Control Panel affects Tutor-Tech's performance. Set the Display Type to Monochrome when using the Teacher disk (text will be easier to read). Later, if your work is in color, set the Display Type to Color. At all times, you can set the System Speed to Fast and use the GS's swift processing speed. See your *Apple IIGS Owner's Manual* for more information about the Control Panel.

Tutor-Tech's software can be used with one disk drive. Tutor-Tech loads into the computer's memory while **booting**, so you can take out the software disk and put in your work disk for the rest of the session.

The Apple computer you use will require a **hand control** (i.e. a mouse or joystick). Hand controls are discussed in an upcoming section, and a list of compatible hand controls can be found in the *Appendices*. The Apples used to present your work will not require hand controls.

What else do you need?? All the blank disks and creativity you can find.

Your work will be stored on blank, ProDOS™ formatted disks. It's smart to make extra copies of your work on backup disks, in the case a disk becomes damaged. Blank disks are only as far away as your local computer store, and formatting them requires only a "System Disk" (one of the disks that came with your Apple).

3 Using this guide

This guide will help you learn Tutor-Tech at your own pace, based upon your computer experience. Should you have any questions not answered by this guide, the *Appendices* have service and support information.

Before you get started, fill out and mail your Registration Card; it's in the software envelope with the disks. It registers you as a Tutor-Tech owner, whose privileges include receiving our free newsletter,

software update notices, and, should you need it, free telephone support. The warranties only apply if your card has been received.

This guide has four parts:

- ✓ Read this *Introduction* to get acquainted with the software.
- ✓ Read the *Tutorial* and follow the step-by-step instructions.
- ✓ Browse through the *Reference* after reading the Tutorial. Later, if you have a question about some feature, you will know where to find the answer in the *Reference* section.
- ✓ The *Appendices* have extra information; many sections of this guide refer to the *Appendices* for more detailed information.

If you have used a Macintosh, you already know how most of Tutor-Tech works. However, read and do the *Tutorial* anyway. Then read the *Reference* to become familiar with specific features.

If you haven't used a Macintosh, Tutor-Tech offers the traditionally easy-to-use features of a Macintosh on your Apple II. You'll learn them quickly in the *Tutorial*. Afterward, you can begin working on your own and using the *Reference* as necessary.

- ❖ *By the way:* Notes like this one will give you additional information throughout this guide. Read them if they apply.

In the future, keep the original disks in the software envelope and in a safe place.

4 Using your hand control

A hand control makes work easy—much easier than keying in all of your commands. The mouse is the hand control we recommend.

If you have a mouse, the next two pages summarize your *Apple II Mouse Owner's Guide*. **Clicking** and **dragging** are the two actions you need to learn. You should also take the time to read your *Mouse Owner's Guide;* it is a slim and informative guide.

If you have a joystick or other hand control, clicking and dragging are two unfamiliar terms. Only one of the two buttons on your hand control will be used for clicking and dragging. You will need to identify which button this is while *Creating your first stack* in *First Time*.

The *Appendices* have a complete list of compatible hand controls (including joystick) and special instructions for their use.

❖ *If you own a mouse and a joystick:* you can only use one of the two hand controls during one session. If both hand controls are installed on your computer, operate first the one you wish to use.

Clicking means moving the **pointer** to the appropriate spot on the screen, pressing and quickly releasing the mouse button.

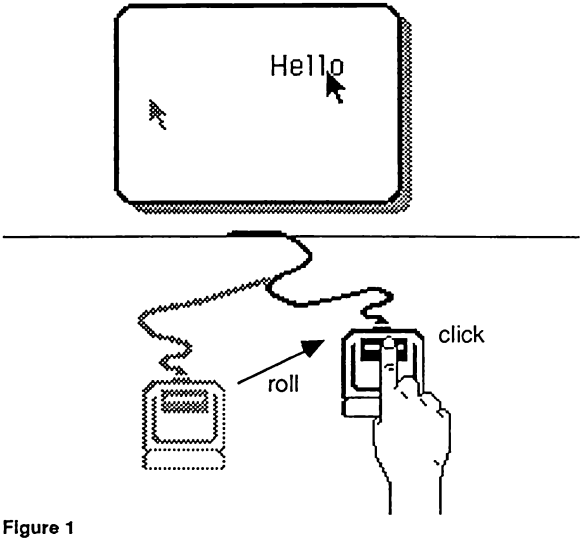


Figure 1
Clicking with a mouse

Dragging is the same as clicking, except that you hold down the mouse button and move the pointer to another desired spot on the screen. The mouse button is released only when the desired spot has been reached.

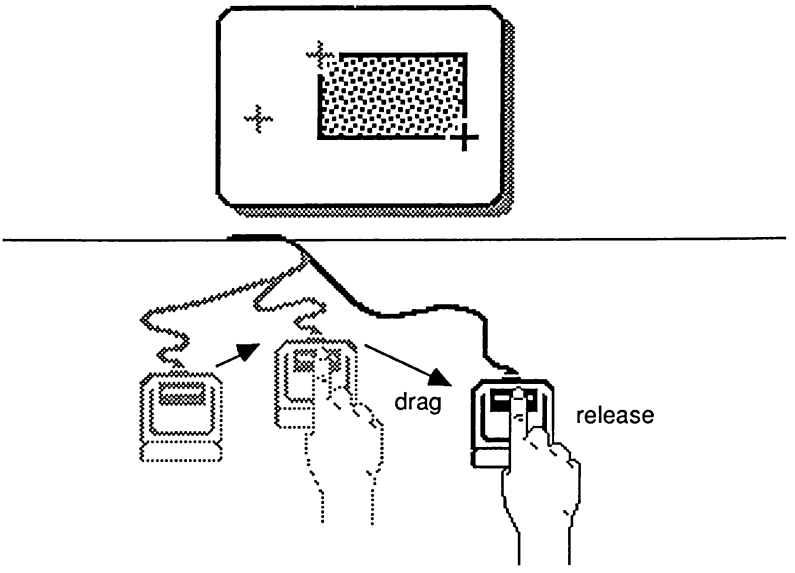


Figure 2
Dragging with a mouse

Since you use your mouse by rolling it around, set aside some table space beside your Apple II before you begin work.

Even with a large area, you can run out of table space. In that case, pick up your mouse, move it back a little, and set it down again:

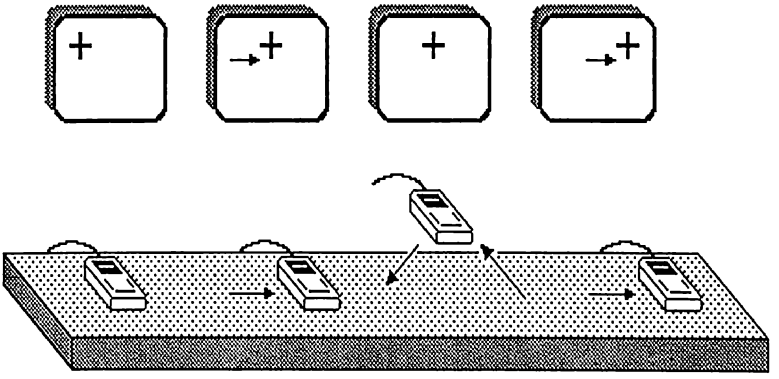


Figure 3
Maintaining one's sanity with a mouse on a small table

Using Tutor-Tech

Tutor-Tech helps you put your ideas on disk. First, you'll create concepts out of words and pictures ('media'). Then, you'll connect those concepts ('hypermedia').

It will be easy, because your new toolbox has lettering and drawing tools... full of possibilities. Each tool's appearance indicates its purpose. So, learning how to use tools is easy.

These tools let you concentrate purely on your work. Your work will be stored in files on the disk, called **stacks**. Stacks can be classroom lessons, business presentations, remedial courseware, visual databases, adventure games... infinite possibilities!

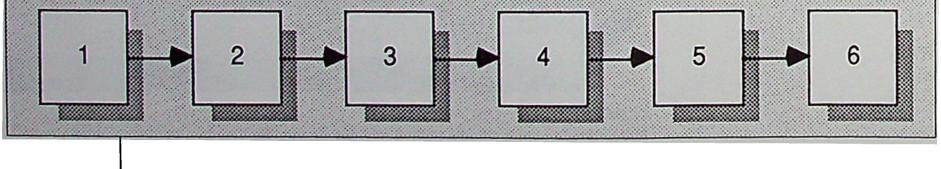
1 Creating stacks

Create and revise as many stacks as you wish. The stacks are created with the Teacher disk and presented (to students) with the Student disk.

A lesson or presentation is a series of concepts or stepping stones... each one leading to the next. With Tutor-Tech, a stack is composed of **pages** and, to link the pages together, **buttons**. Each page can have words, pictures, and buttons. Here's a button: ◉

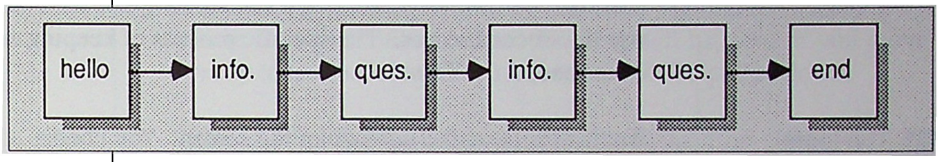
It looks like a push-button. When a finished stack is used, buttons will be recognized (amidst words and pictures) and clicked to proceed to the next page. Thus, buttons can link facts, concepts, and images together.

Pages are strung together by buttons. Each button is linked to a page number—its **destination**. The stack will proceed *from* the current page *to* that destination when the student clicks that button. Here's an overview of a simple stack with six pages: the buttons on each page link to the next page.



On all pages, the Apple II waits patiently for the student's response. When the student clicks a button, the presentation will proceed to that button's destination.

Tutor-Tech's features make it convenient to enter a series of pages, one after another. To make the best use of Tutor-Tech, organize concepts and questions before sitting down at the computer.



Stacks can be intricate. Regardless of how many words and pictures you use, a page can have several buttons—each with a different destination. Therefore, the presentation can proceed one way when a correct answer's button is chosen, or another way when an incorrect answer's button is chosen. Your stacks can incorporate as much motivational or remedial materials as you need.

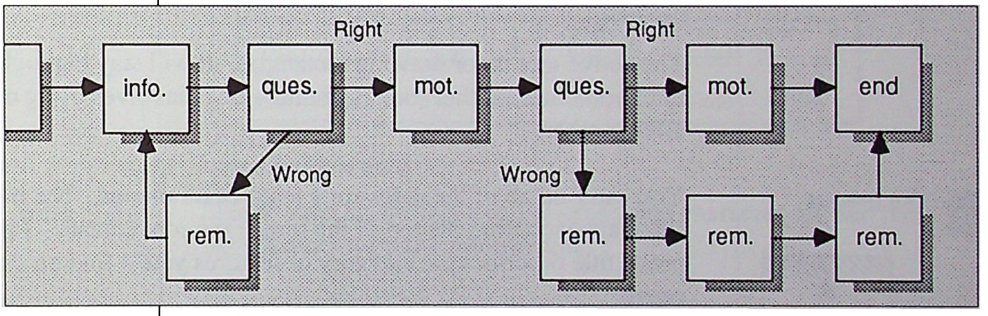


Figure 4
Incorporating motivational and remedial material

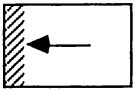
Since students will experience your stacks individually on their own Apple II, they can choose different buttons on different pages and proceed on personalized pathways through the stack. On the way, they will each receive a unique mixture of information, motivation and remediation, humor, and surprises. You can make stacks as intricate as you like. It's your choice.

2 Keeping score

With the Grader disk, made especially for the classroom, you can track student performance on your stacks. Yes! Now you can put your tests on your computers. The Grader can afterward curve, grade, plot, and print out the results automatically.

Keeping score is easy: you set up a class roll with the Grader disk and put that class roll on the same disk with the stack. The Student software will, when presenting a stack, recognize the class roll and use it to record scores. The specific process of keeping score is described in the *Tutorial.*

3 The tools



Tools appear on the left side of the screen. You choose a tool with your hand control by clicking it.

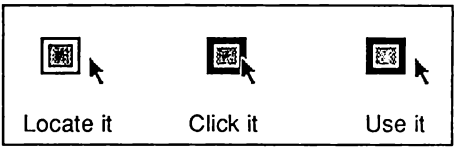
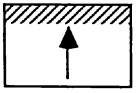


Figure 5
Using a tool

The above tool is for drawing rectangles. It will stay highlighted until you click another tool. Creating stacks involves using one tool after another.

4 The menus



You can find all of the software's features on **menus**. The **menu titles** appear across the top of the screen for convenience. Each menu title describes the category of features you'll find on that menu.

You pull-down menus to use features. Drag from the menu title down to the desired feature.

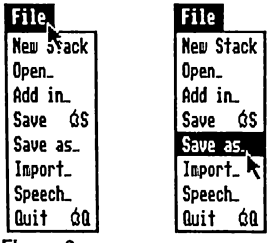


Figure 6
Using a menu

One menu feature you will want to remember is called **Undo**. It is the first feature on the **Edit menu**, and it can undo whatever you typed or drew last. Made popular on the Macintosh computer, the Undo feature helps you easily erase mistakes. Then, you can try again.

If you pull down a menu and can't find the feature you want, move to the left, right, or down until no feature is highlighted *and then release the hand control button.* Nothing will happen. If you move directly to another menu title, that menu will be pulled down.

5 Typing

You will employ your hand control most of the time. However, when you need to type, you will use the keyboard (you knew that) and knowing a few special keys helps.

You can move around with the four **arrow keys** (up, down, left, right), you can insert a space with **Tab**, you can correct a mistake with **Delete**, and you press **Return** to begin a new line.

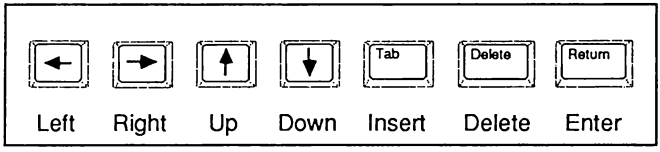


Figure 7
Useful keys while typing

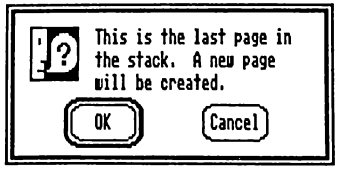
¢ © π Σ ü é

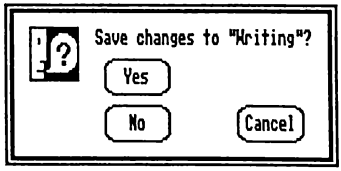
Tutor-Tech also offers a full international character set; see the *Appendices* for more information.

6 Dialog boxes

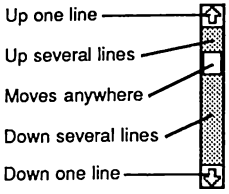
Whenever Tutor-Tech needs more information from you, it displays a dialog box. Some messages will alert you if you might lose work.

Each dialog box has: a message, one or more **buttons** (not the button on your hand control), and a space to type information if necessary. Here are some examples of dialog boxes; in each case, you click one of the buttons to respond.





In all dialog boxes, the **outlined** button is the *default* choice. You could press the **Return** key instead of clicking it. All **OK buttons** and a few other buttons correspond to the Return key. All **Cancel buttons** correspond to the **Escape** key. Now, they will be easier to recognize because the defaults are outlined.



When a dialog box shows you a list of things, such as file names or printer types, the **scroll bar** can help you look through the list. You can click on the **scroll arrows** (on the ends of the scroll bar) to move up/down. You also can drag the little elevator to move anywhere in the list instantly.

An alphabetical list of all dialog box messages can be found in the *Appendices*; each message in the list has a brief explanation of the situation and each possible course of action.

7 Working with disks

Your stacks are stored on disks. Whenever you retrieve or save your work, a special dialog box with extra features appears. It's important that you understand every part of this dialog box. Look it over briefly now; refer to *Working with disks* in *Appendices* if you have questions.

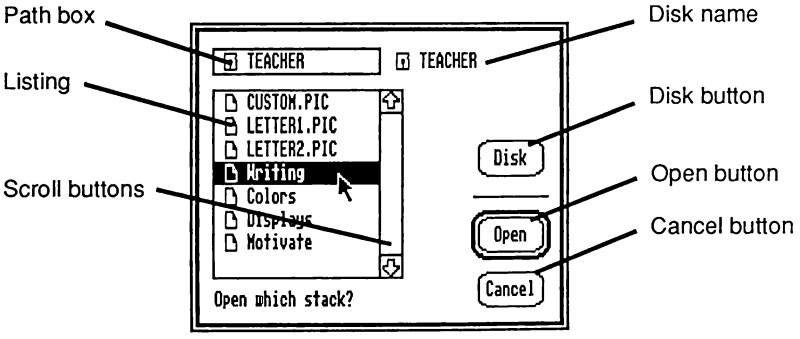


Figure 8
A dialog box for working with disks

Stack names begin with a letter and can be followed by letters, numbers, spaces, and periods... up to eight characters. So, you can have just about any name.

First time

You only have one chance at some special opportunities when you first use Tutor-Tech. Read this section carefully before you start *Creating your first stack.*

1 Registering your software

The Software Registration card is your key to software updates. It's in the software envelope with the disks.

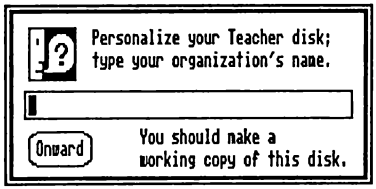
Don't miss out on the valuable *free* benefits listed on the card—available only to Tutor-Tech users. They include our free newsletter, software update notices, and free telephone support. Also, the product's warranties only apply if your card has been received.

Drop it in the mail today!

2 Personalizing your software

You can personalize your software with your organization's name. Each Tutor-Tech disk also has a unique serial number, but it is set at the factory.

First find your disks and decide exactly how you'll phrase and spell your organization's name. Boot your Apple II with the Teacher disk first and wait for Tutor-Tech's welcome screen. A special question will appear and ask for your organization's name:



When you're finished typing, proof your work and then click the Onward button. When the disk drive light stops blinking, the software will be ready and waiting. This is a test that your first disk checks out okay.

If you have the Grader disk, put it in now, reboot the Apple II, and repeat the process to check that it's okay too. (You don't need to do this for the Student disk.) Next, you'll make copies of all of your Tutor-Tech disks.

Tutor-Tech software is not copy-protected. We trust you to make *only* the copies you need for your location. You may **not** make extra copies for other people, other organizations, or for sale. Your software license describes all you can and cannot do. Call us if you have any questions, or if you would like to receive information on site licenses, network licenses, or anything else you have in mind.

- *If you have a friend interested in Tutor-Tech,* they can request information and a free Demonstration disk from Techware.

You should make working copies of your software for everyday use. It takes only a couple minutes and will protect your original disks from everyday peril. You can use your favorite disk utility software to copy Tutor-Tech: copy each entire disk (use a "Copy Volume" feature).

The Apple computer on your desk

Let's discuss *your Apple II*—the computer you will use to create stacks. You're about to copy the Teacher and Grader disks.

If your Apple II has only floppy disk drives, you should make one working copy each of your Teacher and Grader disks. You'll use these working copies from day-to-day. If one becomes damaged, you can make another working copy from the original. If necessary, refer to your *Apple Owner's Manual* for instructions on copying a disk.

- *If you have micro disk drives (800K capacity),* you can copy the Teacher and Grader programs to one micro disk as your working copy. That's right—both programs can fit on one micro disk! For instructions on how to do this, see the instructions for hard disks (below).

If your Apple II has a hard disk, you can copy the Teacher and Grader programs onto it as your working copy. Use the "Copy File" feature of your favorite disk utility and copy every file from those disks into *one directory* on your hard disk.

- *Hint:* While copying files, your utility may ask if existing files should be replaced. Answer No in all cases. Certain files come on all Tutor-Tech disks, and you only need to copy them once.

To use Tutor-Tech on your hard disk, execute either "TEACHER.SYSTEM" or "GRADER.SYSTEM".

- ❖ If this hard disk is shared by other Apple computers (a shared-disk system), an additional license is required but there is no extra charge for this. Contact us for this license.

■ The classroom Apple computers

Let's discuss the other Apple II's—the computers where your stacks will be presented.

The Student disk can be copied *up to fifty times*. You will need one copy for each computer where stacks will be used. If one becomes damaged, you can make a replacement copy from the original. If necessary, refer to your *Apple Owner's Manual* for instructions on copying a disk.

- ❖ *If you have micro disk drives (800K capacity),* you can copy the Student program to a micro disk and have a great deal of free space left for stacks. This will be a great asset to the prolific author, because so much hypermedia can be put on one disk before running over to a second disk.
- ❖ *If you plan to employ Tutor-Tech on more than fifty computers,* contact us about an extended license (see *Appendices*).
- ❖ *If any of your computers are on a network* and you'd like to present stacks over the network (instead of making copies of the Student disk), contact us for a network license. There is no extra charge for this (see *Appendices*).

Here's an overview of a typical classroom. You may have a different number of computers, but this should represent where working copies of the Teacher, Student, and Grader disks are used. You should keep the original disks in a safe place.

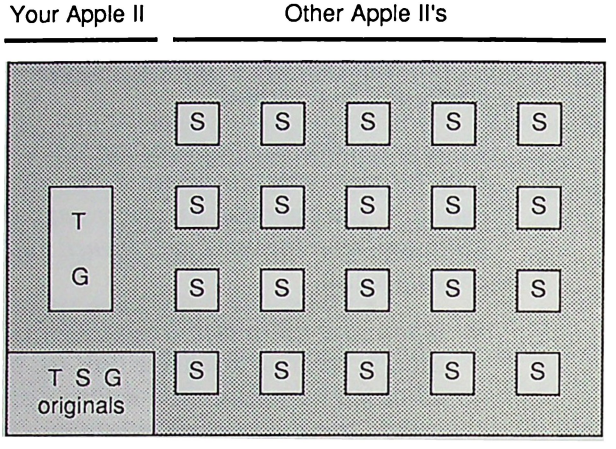


Figure 9
A typical Tutor-Tech classroom
T=Teacher disk, S=Student disk, G=Grader disk
Notice that original disks are kept in a safe place

Make your working copies before proceeding to the next section. If you are unsure about how copies are made, try looking through the manuals that came with your Apple. If you are still unsure and no one at your site can help you, call us. We'll be glad to help you (see *Service and Support* in the *Appendices*).

4 Using old Tutor-Tech files

If you have used Tutor-Tech before to develop stacks or score files or both, you won't lose any of your work. You can continue to use them as they are. The Student program will recognize and convert old stacks before presenting them.

To continue developing a stack or a score file, use the Teacher or Grader program (respectively) to retrieve the file normally (using the Open... feature on the File menu). It will be converted and, when you save it, it will be in the new format from then forward.

Creating your first stack

It's time for your first stack. Use this part of the guide while at a computer with a hand control; you will learn best by doing. You will create your first stack with the help of *step by step* instructions. And it won't take long either—just follow the illustrations.

So relax, and feel free to take breaks between sections.

Make sure you understand the *Introduction* to this guide before proceeding; clicking tools, pulling down menus, and typing will be essential. Also, you will be using those working copies of the Tutor-Tech original disks you made in the *Introduction.*

Objective: To create a small stack that will teach the essentials of writing a letter.

Name: "First"

1 The Teacher disk

The Teacher disk is your vehicle for creating stacks. Boot your Apple II with the Teacher disk now and the following screen will appear shortly after the welcome:

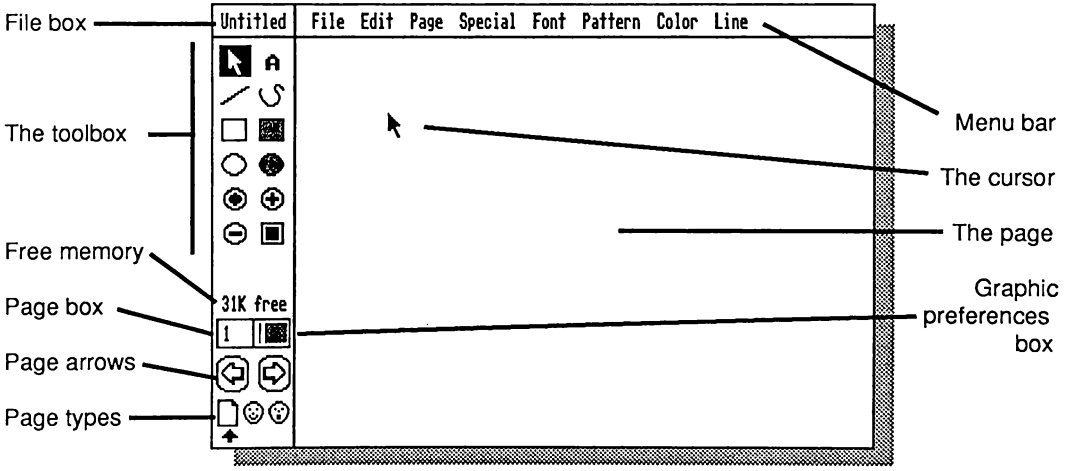
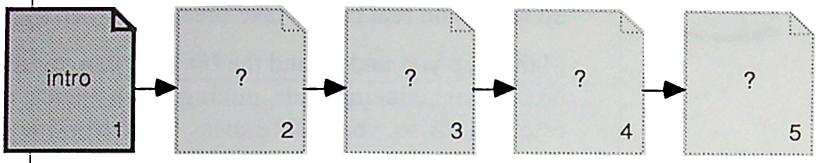


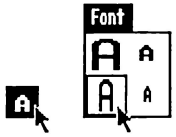
Figure 10
The parts of the Teacher's screen

If you don't understand every part of the screen, don't worry. For now, visualize how stacks are created: picking up one tool, moving onto the page and using it, picking up another tool, and so forth.

Every new stack deserves a front page. It should introduce students to the stack. You are on page 1 now, just starting out. The page is blank and ready to become interesting.

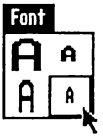


You're free to begin typing or drawing anywhere on the page, but let's begin by typing the title of this stack. Click the text tool and then choose the tall text size on the Font menu (1). Then, move out onto the page, a little to the left of center, and click *again* to begin typing. Type "Writing a Letter" (2). If you make a mistake, press the **Delete** key to rub out the last typed character.

(1) 

(2) Writing a Letter

Next, let's type the subtitle of this stack, but in smaller letters. You don't have to click the text tool; it's already highlighted (in use). Choose a smaller text size on the Font menu (1). Then, move out onto the page again, below the title and on the left, and click to begin typing. Type "A sample lesson on how to write a letter." (2)

(1) 

(2) A sample lesson on how to write a letter.

❖ *Apple IIGS users:* For best viewing of small text on a color monitor, use the Control Panel to set the Display Type to Monochrome. To get into the Control Panel, hold down the Control and ☆ keys and press Escape.

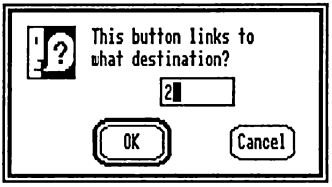
You have almost finished the first page! You just need to provide the student with an opportunity to proceed to the next page, which is page 2. You'll use a button and put it at the bottom of the page, but first let's give the student a hint to click this button. With the text tool still highlighted and having just chosen a small size from

the Font menu, you can continue typing in small letters. Click in the lower right corner of the page and type "Begin". Short phrases such as "Begin", "Click me", and "What next?" encourage students onward... have fun later thinking up your own.

Now, you can position a button next to the encouragement. Because this is a simple 'proceed situation', use a regular button. When a student clicks this button, the stack will proceed to the page you are about to specify. The buttons with plus and minus signs are for right and wrong answers; they will be discussed soon. Click the button tool in the toolbox (1), move onto the page, beside the word "Begin", and click there (2). A dialog box will ask for a destination. Type "2" and click the OK button (3).

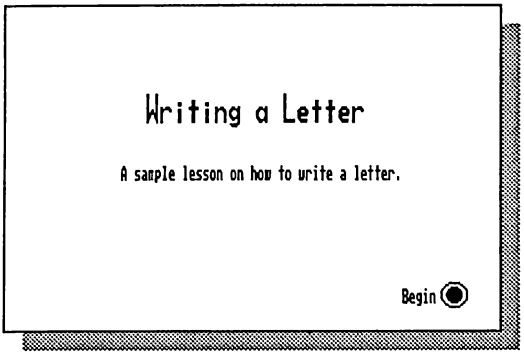
(1)

(2)

(3) 

❖ *With dialog boxes,* you can press the Return key instead of clicking OK. Do whichever is more convenient for you. Also, the Escape key substitutes for the Cancel button.

Page 1 is complete! It was easy, using only text and one button:



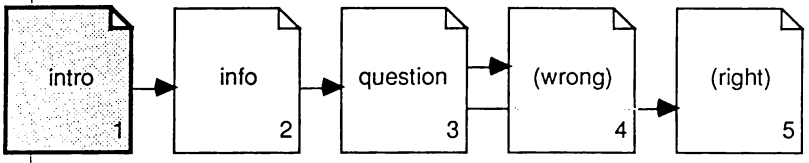
When students use this stack (with the Student disk), they will always begin on page 1. They can look at the page as long as they like before clicking the button beside the word "Begin". The stack will then proceed to page 2. Now, so will you.

Important

Please notice the happy and surprised faces in the lower left corner of the screen. Before you use them, read the section on *Page types* in the *Teacher's controls*. If you click one of the faces by accident, just click the icon of the page again.

3 Developing the storyline

Organize your thoughts before creating stacks. Plan what information and questions will be used. Here's the plan for your first stack: information on page 2, a question on page 3, remediation on page 4, and motivation on page 5:

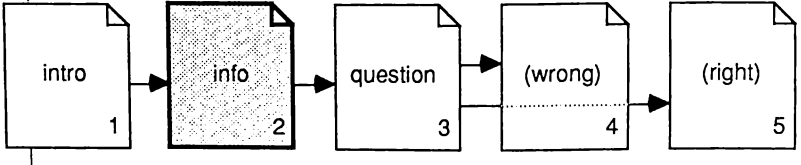


Page 1 is done; page 2 is next. Choose **Add after** on the Page menu and the screen will clear (1). A blank page 2 will be created; the page box will show the new page number (2). Page numbers are automatically assigned to new pages.

(1)

(2)

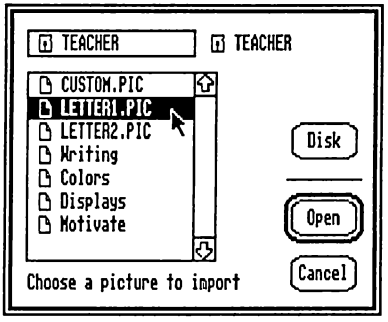
Page 1 is still in memory; you just can't see it. Page 2 is the current page now.



Page 2 will have great beginnings. Artwork has been placed on the Teacher disk, and it's time to use it. Pull down the File menu, choose **Import...** (1), choose the picture called "LETTER1.PIC" (2), and click the Open button (3).

(1)

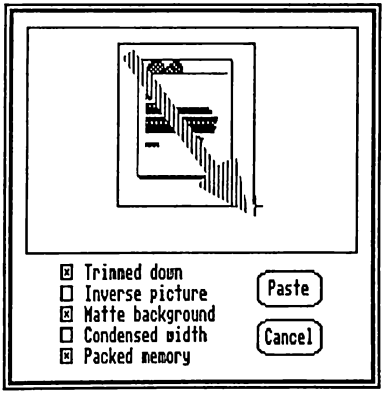
(2)



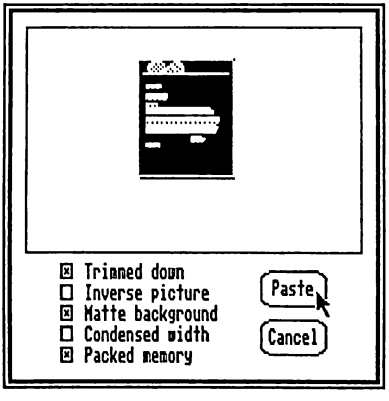
(3)

Pictures are large; Tutor-Tech allows you to select just what portion you need of them. Draw a box (by dragging) around the letter in the picture (1). If done right, the object will be highlighted and you can click the **Paste button** (2). If you miss, try drawing another box around the letter.

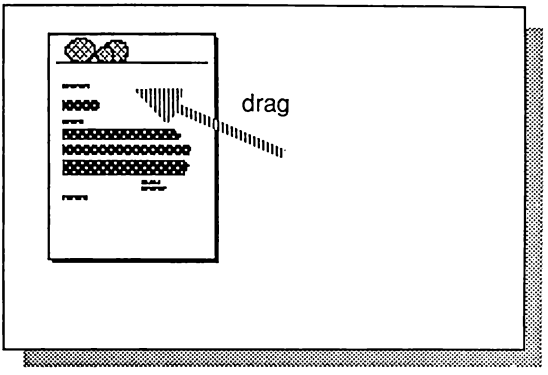
(1)



(2)



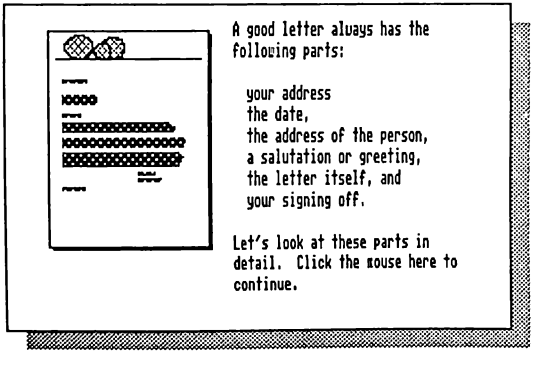
After pasting the picture, it will be selected automatically on the page (as if clicked with the **selection tool**, to be discussed later). A picture is always selected right after being pasted because, most likely, you will want to move it into position. And you do. Move the pointer to the center of the picture, and then drag it up and over to the left to make room for words.



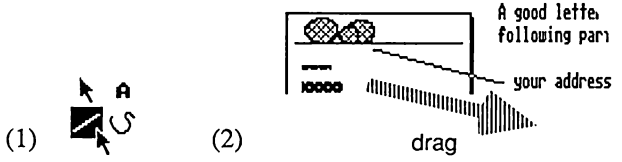
A noted teacher once said, "Words *and* pictures do a great lesson make." Tutor-Tech gives you the freedom to arrange words and pictures. Click the text tool to begin typing (1). Then, click just to the right of the top of the picture and type this passage (2). Press Return between lines and, for those indented lines, two extra spaces up front will do.

(1)

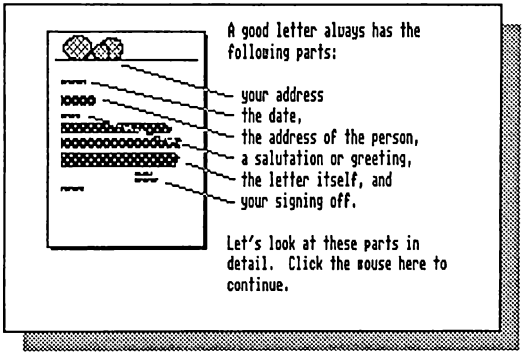
(2)


A good letter always has the following parts:
your address
the date,
the address of the person,
a salutation or greeting,
the letter itself, and
your signing off.
Let's look at these parts in detail. Click the mouse here to continue.

Now, you've talked about the parts of a letter. Why not point them out? Make it unmistakable to the student: connect the name of each part of the letter with that part in the picture. Use the **line tool** to draw your first line from the words "your address" to the letterhead portion of the letter. Something like this.

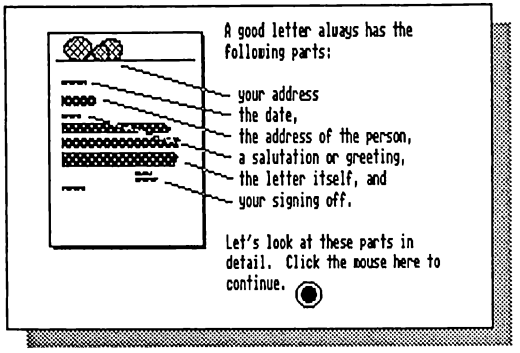


Smashing! Okay, take one deep breath and draw lines from the other names to their respective parts. It can look like this.

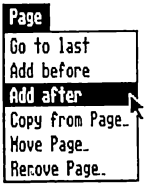

A good letter always has the following parts:
your address
the date,
the address of the person,
a salutation or greeting,
the letter itself, and
your signing off.
Let's look at these parts in detail. Click the mouse here to continue.

Before you get *completely* carried away, you need to add a button to collect the student's response. This is the same situation as on the last page. Click the button tool (1); then move to the lower right portion of the page and click (2). From this page, page 2, the student will proceed to page 3. Therefore, type 3 and press Return.

With that, page 2 will be finished (1). Choose Add after on the Page menu (2).

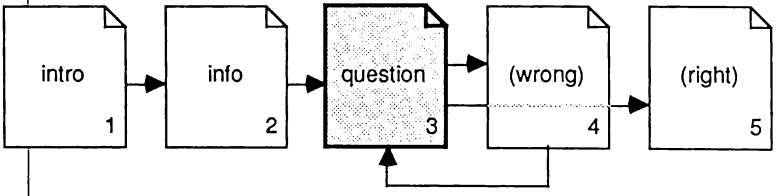

A good letter always has the following parts:
your address
the date,
the address of the person,
a salutation or greeting,
the letter itself, and
your signing off.
Let's look at these parts in detail. Click the mouse here to continue.

(1)



(2)

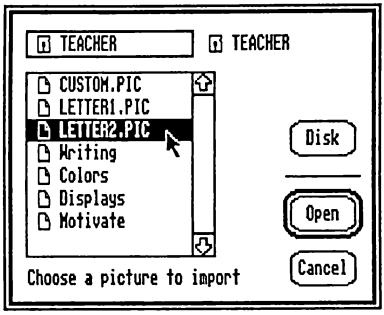
When the screen clears, you will have a fresh, new page. Page 3. This page will be different; it will ask a question. Words and pictures will be handled the same way, but different buttons will be used to collect right and wrong responses. Our lesson plan below shows how student responses will be handled. Incorrect responses will go to page 4 and then return to the question. Correct responses will go to page 5, and from there move forward.



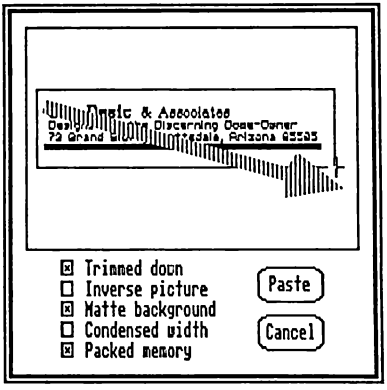
More dazzling artwork is on the disk. Choose Import... on the File menu (1), choose the picture called "LETTER2.PIC" and then click the Open button (2).

(1)

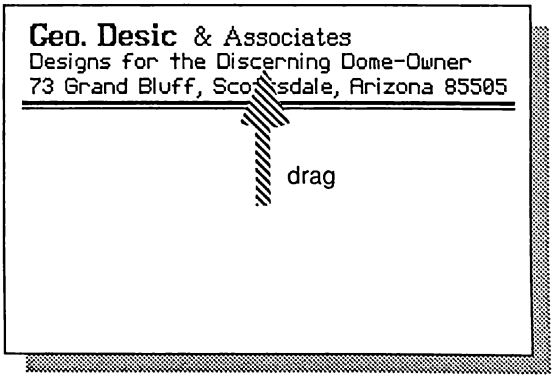
(2)



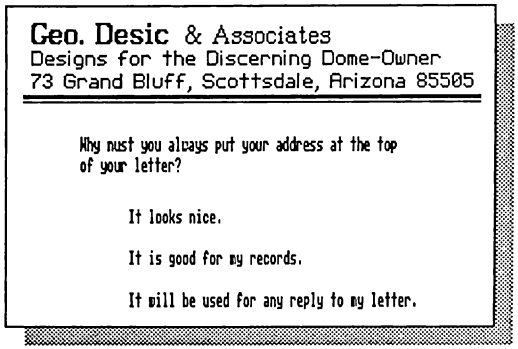
Select the image of the letterhead by drawing a box around it, and then click Paste.



When the image appears on the page, drag it to the top of the page. You will then have room for a multiple choice question underneath.



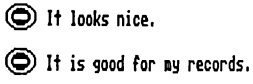
Okay, words are next—use the text tool. Click under the left side of the picture and type the question. Then, click under the question and type the multiple choice answers. Spread out the answers vertically on the page by pressing Return twice after each line.


Geo. Desic & Associates
Designs for the Discerning Dome-Owner
73 Grand Bluff, Scottsdale, Arizona 85505
Why must you always put your address at the top of your letter?
It looks nice.
It is good for my records.
It will be used for any reply to my letter.

On previous pages, you used regular buttons. Now, you have right and wrong answers. So, you use plus and minus buttons; they show you which answers are right (+) and wrong (–) on the page. Students will *not* see the plus and minus signs when they use the Student disk.

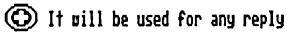
The first two answers on the page are incorrect. Click the minus button tool (1) and then click next to each wrong answer on the page, each time supplying the page number 4 as the destination. The result should look something like this (2). Page 4, remember, will have remediation.

(1)

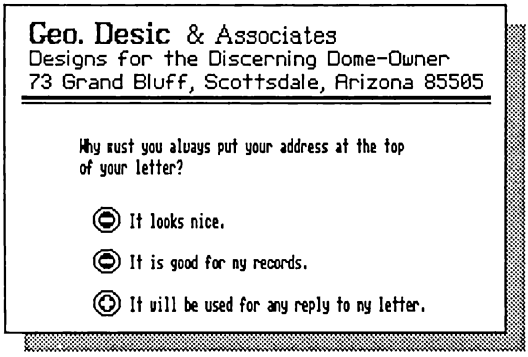
(2) 

When asked for the destination of the second minus button, you may have noticed page number 4 was the default destination (it was already there). Tutor-Tech remembers the destination of your last button and offers it to you on the next button—if you like it, press Return. In this way, the default destination is especially helpful when you want all wrong answers to go to the same destination. It'll save you from typing the same page number every time.

To finish the question, position a plus button in front of the last answer and link it to page 5. A correct answer will, therefore, 'jump' over the remediation on page 4. Click the plus button tool (1) and then position the last button beside the correct answer (2). *Make sure you type 5 for the destination, otherwise the default of 4 will be used.*

(1) (2) 

That wraps up page 3. Does your page 3 resemble ours?


Geo. Desic & Associates
Designs for the Discerning Dome-Owner
73 Grand Bluff, Scottsdale, Arizona 85505
Why must you always put your address at the top of your letter?
It looks nice.
It is good for my records.
It will be used for any reply to my letter.

- *Plus and minus buttons affect scores.* A student clicking a plus button will tally a correct response, and clicking a minus button will tally an incorrect response. The "+" and "–" symbols are there to help you distinguish right from wrong answers in stacks you are developing.
- *What about fill-in-the-blank questions?* This tutorial illustrates how you can use regular buttons, plus buttons, and minus buttons. If you want the student to answer by typing, instead of clicking a response, use fields. See *The Teacher's Tools: Fields* for more information.

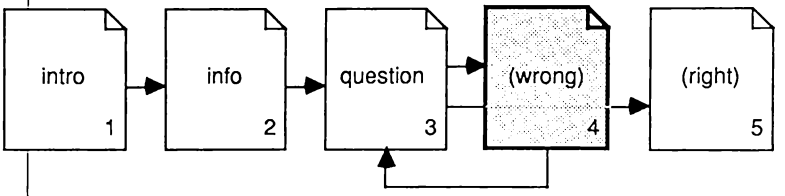
Before moving on to pages 4 and 5, consider the following point.

In the future, you may want to *change* a button's destination. It's easy to do. You pick up the same button tool and click *directly on top* of the existing button on the page. Its destination will be displayed and you can link the button elsewhere.

For practice, consider the plus button next to the correct answer. Make sure the plus button tool is still highlighted in the toolbox (1), and then click *directly on top* of the button on the page (2). When the dialog box appears, make sure page 5 is the destination and then click OK.

(1) (2)

To review, here is our lesson plan. You're ready for page 4 now. Students will get to page 4 only if they respond incorrectly to the question on page 3. From page 4, they will return to page 3.

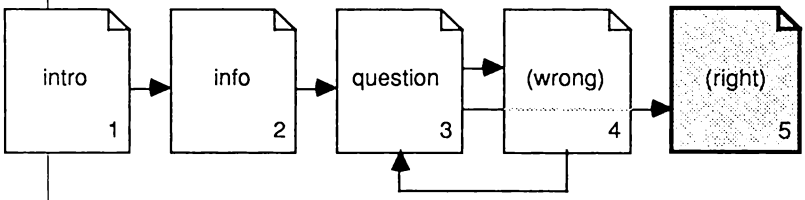


It's time to strike out on your own. Page 4 is your objective. Here's what page 4 should look like—see how well you can do. (If you need help, you will find some hints on the next page.)

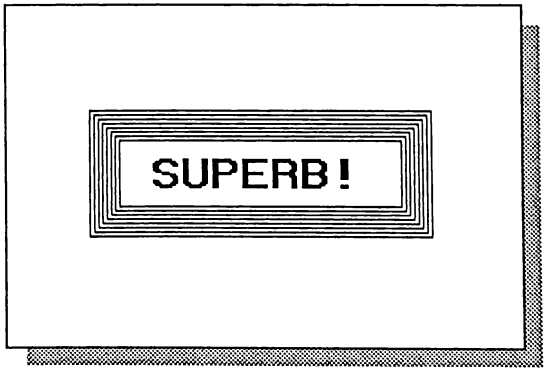
Here are some hints on how page 4 can be created. Feel free to change the words and pictures to your liking, but do use a regular button and make its destination page 3.

- ✓ First, choose Add after on the Page menu.
- ✓ Use the text tool and the tall text size on the Font menu to type "Come, now, you can do better than that!"
- ✓ Use the **rectangle tool** (not the filled one) to draw several rectangles around the words. Rectangles are drawn corner to corner. If you draw a rectangle with less than desirable proportions, you can Undo it (choose Undo on the Edit menu).
- ✓ Use the small text size on the Font menu to add "Click here and then try again...".
- ✓ Use the button tool to position a button after the second line of text. Link the button back to page 3 (to "try again").

One more time! Students will end up on page 5 only if they respond correctly to the question on page 3. Take this opportunity to motivate your students; reward them.



It's up to you again. Here's what page 5 can look like. Can you duplicate this? If you can, your skills with your hand control are developing well. If you have a tough time, remember that you are learning to use a new tool... it takes a little time. (Again, if you need help, you will find some hints on the next page.)



Here are some hints for page 5, to be used strictly or loosely—as you wish. However, do *not* put a button on this page, because it is the last page in this sample stack.

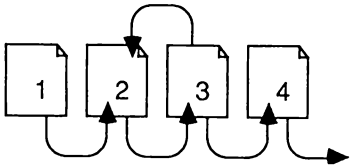
- ✓ Choose Add after on the Page menu.
- ✓ Use the text tool and the large text size to type "SUPERB!"
- ☐ ✓ Use the rectangle tool again to draw more rectangles.

This stack stops at page 5. If you had some other ideas on letter writing, you could add a button and link it to page 6. But now, before saving your work, consider the following.

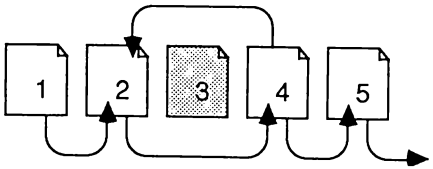
Important

Adding new pages has been painless in this *Tutorial,* because the pages were always added at the end of the stack (after the last page). In the future, it can stay painless if you remember one thing: adding a new page will renumber all pages. So, after you add a new page in the middle of a stack, all of the button destinations will *jump over* the new page at first. You will need to change the button destinations on neighboring pages to include the new page in the structure of the stack.

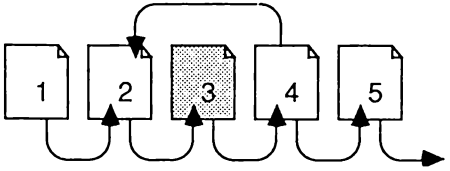
In this example, more material is needed between pages 2 and 3.



After inserting the new page, the flow of the stack has not really changed yet.



When you reroute the buttons from page 2 to page 3 and from page 3 to page 4, the change is complete.



Now, you have seen how easily stacks can be created and changed. After a few more tips, you can set aside this guide and begin developing your own stacks.

4 Saving your stack

Don't put it off! You should save your work *while you work*. You have come up with five great pages, and saving them is in order. Choose **Save** on the File menu. When the dialog box appears, put in your working copy of the Student disk and click the **Disk button** to change disks (1). Then, type the name of this new stack, "First", with some extra spaces to completely wipe out "Untitled" (2), and click the Save button (3).

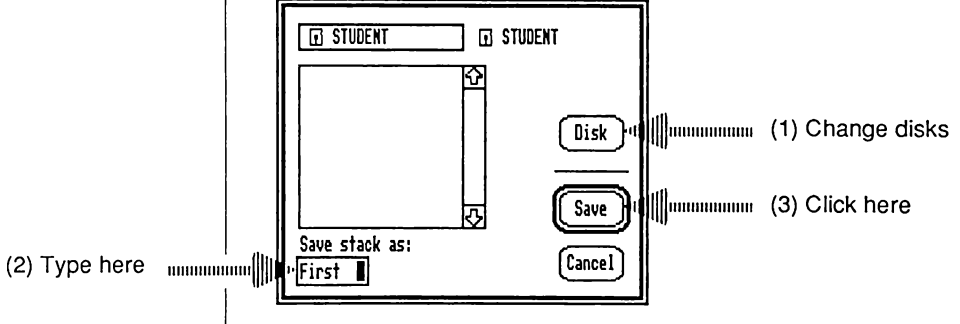
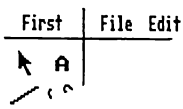


Figure 11
The dialog box for saving your stacks



When you save a stack, all of the pages in the stack are saved together under that stack's name. That name of the current stack is always shown in the upper left corner of the screen. It's the one you're working on now.

When you save a new stack, you give it a name. Therefore, when you choose Save on the File menu next time, you won't be asked for a name... the stack will be saved immediately. *No extra typing or clicking will be required.*

You can save stacks on working copies of the Student disk, or on any formatted disk. The Student disk is only needed to boot up the Apple computer. Then, you can use stacks on that disk or on any other disk.

❖ *Hint:* To save the stack under a different name or on a different disk, choose **Save as...** on the File menu.

5 Previewing your stack

You can preview your stacks. This saves you from rebooting the Apple II with the Student disk—just to see if the stack works. Furthermore, we recommend that you preview all of your stacks before presenting them to students; simple design errors can be arrested early and fixed easily.

The **Preview Stack** feature on the Special menu gives you the opportunity to click directly on buttons, as if you were a student using the Student software.

✓ You can click buttons and see where they lead.
✓ You can click plus and minus buttons and experience your own motivation and remediation.
✓ You can type fill-in-the-blank responses into fields.

While previewing, the stack will appear exactly as it does to the student... even the plus and minus signs on buttons disappear.

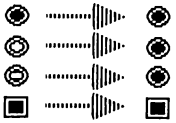
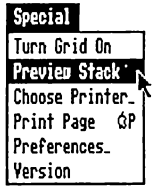


Figure 12
How buttons appear
The teacher's view of buttons versus the student's view

Before previewing your stack, you can choose a starting page with the **page arrows**. Clicking the left page arrow moves back one page, and clicking the right page arrow moves forward one page. Let's return to page 1. Click the left page arrow until you arrive at the first page (1), and then choose Preview Stack (2).

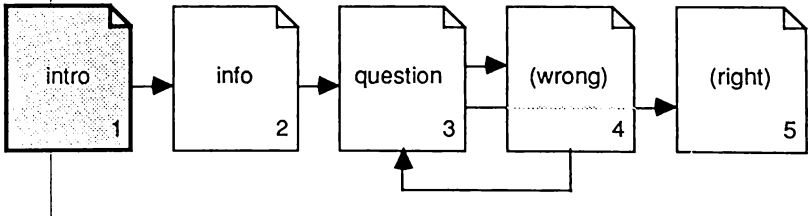
(1)

(2) 

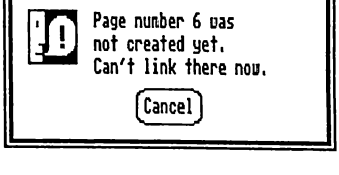
Did you see the tools and menus disappear? And the 'stop-hand' appear? You don't need the tools and menus while previewing, but you will need the 'stop-hand' to stop previewing.

So, preview away. You can click directly on buttons on the pages of the stack and, when you're finished, click the 'stop-hand'. If you like, test the stack by following this road map:

- ✓ go from page 1 to 2 to 3, and try the question's first incorrect answer which leads to page 4,
- ✓ then go back to 3, and try the second incorrect answer which also leads to page 4,
- ✓ then go back to 3 for the last time, and try the question's correct answer which leads to page 5.



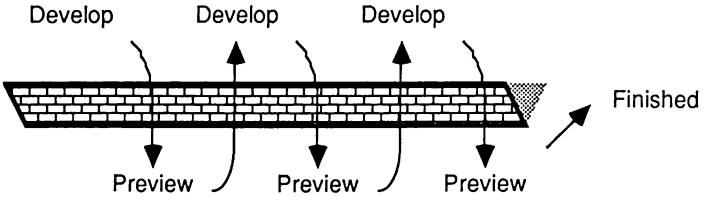
You can link a button to a non-existent page, but the stack won't work properly when used. For example, if a button had been linked to a non-existent page 6, you might come upon this message when using the stack. You would then click the Cancel button and fix the stack.



When you return from previewing a stack, you can correct misguided buttons and other mistakes in your stacks easily, by remembering these straightforward hints:

- ✓ Undoing—Choose Undo on the Edit menu to remove the last item created on a page. It's great for removing unwanted text, graphics, and buttons.
- ✓ Editing text—choose the text tool, click *directly* over the words, and type (easy!).
- ✓ Editing graphics—choose the selection tool, click a graphic item or draw a selection box around several graphic items, and drag them to move them or drag one of their 'handles' to stretch them.
- ✓ Editing buttons—choose the tool which resembles the button, click directly over the button, and supply the proper destination.
- ✓ Deleting anything—choose the selection tool, click any text, graphic item, or button, or draw a selection box around several items, and press the Delete key.

Previewing speeds development, because you can develop a stack, easily jump 'over-the-wall' to preview it, return to develop it some more, etc. You can finish stacks faster this way.



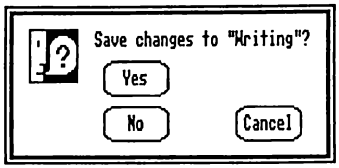
When you're satisfied that the stack is 'functional', make sure that you save the latest and greatest version of your stack on disk.

Important

Please remember that this stack of five pages is only an example. In your stacks, you will most likely want more pages of information before you ask any questions. Also, you may apply a less linear structure to your stack. The size and design are completely up to you. You should, however, remember that the last page in a stack has no buttons unless there is a real need to proceed somewhere.

6 Leaving the Teacher program

It's been fun. Eventually though, you will have to set aside your work. Choose **Quit** on the File menu when you want to leave the Teacher program. If you forget to save changes to your stack, the software will prompt you.



A finished version of the stack on "How to write a letter" can be found on your Teacher disk. It is called "Writing". Open it, if you like, and compare it with your stack. How well did you do?

Before moving on, this is a good time to take a break.

Important

If you have the Grader disk, proceed to the next section. You will set up a score file to track student performance on your stack.

If you don't have the Grader disk, skip the next section and proceed directly to Presenting your stack.

Preparing to score your stack (optional)

Now that you've created your first stack, think about your first computer based test. You will need the optional Grader disk. The Grader program is not a full gradebook manager, but it is terrific at evaluating student performance on Tutor-Tech stacks. This part of the guide discusses the easy process of typing in student names and saving them in a **score file.** Like the Teacher program, you will need an Apple with a hand control.

Make sure you have read the previous section called *Creating your first stack* and done the exercises. You will need a finished stack on disk and you will need to know its name. In the previous section, you created a stack called "First" and saved it on disk.

Objective:	To create a score file for a stack
Stack name:	"First" (or you can use another stack)
Score file name:	"First.Scores" (the stack name plus ".Scores")

1 The Grader disk

The Grader disk is your vehicle for scoring stacks. Boot your Apple II with the Grader disk now and the grading screen will appear shortly after the welcome. Here are the parts of that screen:

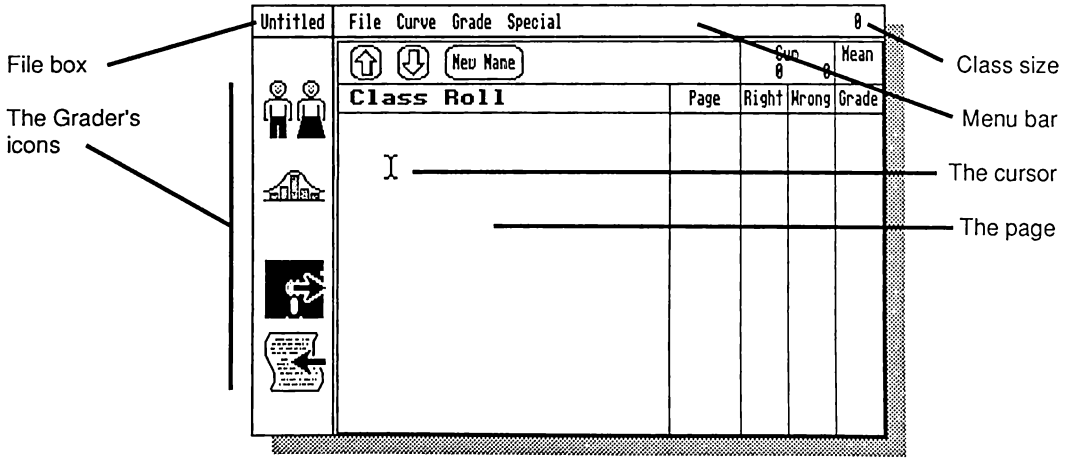


Figure 13
The parts of the Grader's screen

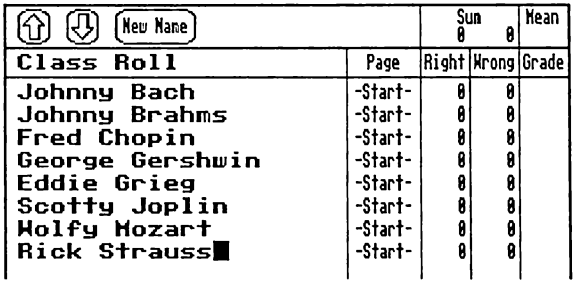
You won't make use of all of the Grader's features in this section—only those involved with creating a score file. Later, after the students have used the stack, you'll use other features for producing final grades.

2 Entering student names

Think of a score file as your class roll. On the computer's screen, there's room for each student's name, where they left off in the stack, the number answered right, the number answered wrong, and the final grade. For now, you need to enter each student's name. Click the **New Name** button to begin.

New Name

Type the following eight student names (or some popular names from your school). Press Return after each one; use the Delete key to correct mistakes.



The above names are in alphabetical order, because they were typed in directly from our sorted class roll. You can enter names directly from your class roll, in whatever order you prefer them. You can also enter Social Security Numbers or use any other method of identification; however, use something students can identify, because they will need to pick it out of a list.

Changing names is exactly like editing text in stacks. For practice, the middle initial of "Johnny Bach" was intentionally left out of the above list. The first name on our list should read "Johnny S. Bach". Click the "B" in "Bach" (1), press Tab three times to insert three spaces (2), and type "S." (3).

(1) (2) (3)

❖ *Using the arrow keys:* You can always click exactly where you want with the hand control, but arrow keys may be more convenient for you. The **arrows keys** move the blinking cursor up, down, left, and right. Working with names is fully discussed in detail in *The Grader's Reference*.

3 Saving your score file

Score files are named after stacks. The stack you created earlier is called "First", so its score file will be called "First.Scores".

Choose Save on the File menu. When the dialog box appears, put in the working copy of the Student disk and click the Disk button to change disks (1). Type "First.Scores" and some extra spaces to completely wipe out "Untitled.Scores" (2), and click the Save button (3).

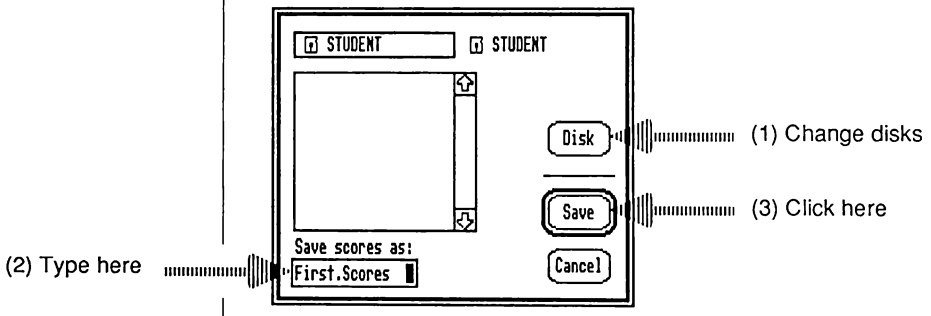
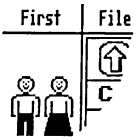


Figure 14
The dialog box for saving your score files



The saved score file will contain all of the names on the list; any students left off the list can't use the stack and be graded automatically. The name given to your score file becomes the current score file name, shown in the upper left corner of the screen.

The disk now has a stack and its score file. When the stack is presented, the Student software will recognize the score file and automatically use it to keep scores. If no score file were there, no scores would be recorded on disk.

You have just finished saving one score file onto one disk. For a whole class, you would save this same score file on many disks and then pass out the disks to your students. Refer to *Methods of scoring* in *The Student's Reference* for more information.

4 Leaving the Grader program

Can we be leaving the Grader program so soon? In this case, yes. You've prepared to score a stack by setting up a score file. That's all that is necessary for now, so choose Quit on the File menu.

Important

Not much has happened since the last break. However, this *is* the end of this section, so it is *technically* break time.

You are now ready to proceed to the next section, *Presenting your stack*. After you present your stack, the scores will be ready to collect. Then, you can use the Grader program to grade the scores, curve them, plot them, and print them out... all automatically.

Presenting your stack

The Student disk is designed to present stacks on a computer. *Students cannot modify your stacks* in any way... they can only use stacks according to your design. Read this section and pass along to students the information you see fit. Students may use the keyboard or a hand control to use stacks.

To present a stack, you need a finished one on a disk; your stack called "First" should do fine. If you are keeping score on this stack, the Student software will automatically track the scores and record them on disk so that you can collect them later with the Grader disk.

Important

This section offers step by step instructions for using the keyboard, because most students don't have hand controls. However, if your students use hand controls, have them click directly on the desired icon or button.

Objective: To present a stack
Name: "First" (or you can use another stack)

1 The Student disk

Taking stacks is so easy, most students won't need help. They need only know the exact name of the stack to be used and, if the stack will be scored, that they will identify themselves.

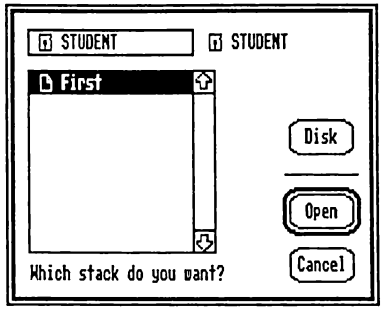
If you have a hand control but wish to use the keyboard as students will, press a key (any key) while the Student disk is booting. This will override use of the hand control.

Boot the Apple II with the Student disk now.

2 Choosing a stack

The icon of "the book" is used to choose a new stack. It's the first order of business, so the software automatically chooses "the book" for you.

A list of available stacks will appear. To choose a stack, press the **up arrow** and **down arrow** keys, until the stack's name is highlighted, and then press Return. You can also look for stacks on other disks by pressing **Tab** (the equivalent of clicking the Disk button), but for now, merely choose the stack called "First". Its name will appear above the icon of "the book".

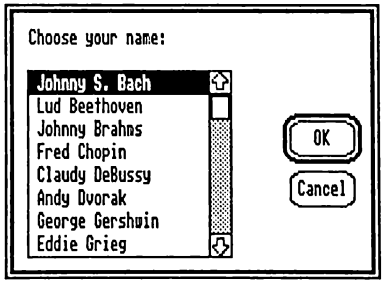


3 Identifying yourself

The icon of "the two students" is used to identify yourself.

If the software finds a **score file** named after the stack, it will automatically choose "the two students" icon and ask the student for identification. If you haven't created a score file with the Grader disk, proceed to *Using the stack.*

The software will present a list of student names. Choose a student name with the up arrow and down arrow keys and then press Return. Here are the students found in "First.Scores"; choose any name.



The initials of the chosen student will appear above the icon of "the two students".

- *One additional benefit of scoring stacks* is tracking a student's progress through stacks, especially long stacks. If a student stops using a stack early, the number of the last page shown is recorded in the score file. The next time that student uses that stack, he or she will begin exactly where they left off.

The icon of "the go hand" is used to begin the stack. This icon is chosen automatically after "the book" and "the two students".

❖ *Interesting:* Once you choose the icon of "the go hand", it becomes the icon of "the stop hand", which is clicked to stop using the stack.

Once the stack begins, direct your response at buttons and fields.

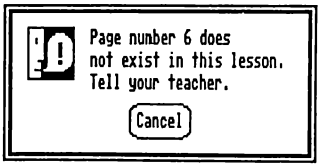
To respond to a button, you press the space bar or arrow keys until the cursor points at the button, and then you press Return. A page can have one or many buttons.

To respond to a field, you type an answer. It's a fill-in-the-blank question. Use the **Delete** key to correct any mistakes and press Return when you are satisfied with your answer.

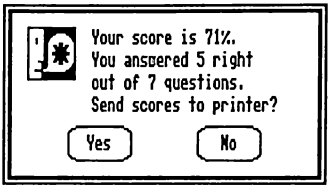
ANSWER

Now, go through the stack "First" and experience what the student would.

Sometimes, stacks are not perfect. You may choose a button and, surprise!, a message informs you that the button was linked to a non-existent page. Press the Escape key (or click the Cancel button) and the stack will stop here. If any other messages appear, *The Student's Reference* and the *Appendices* can help.



When a student finishes using a stack, the student's final score will be ready. If a score file (named after the stack) can be found on the disk, the final score will be stored there. If not, the final score is shown on the screen and can be printed out.



❖ *Note:* You may have students turn in their final, printed scores for a grade. Anticipating this, we made the printout a little fancy so that students can not easily duplicate it.

What happens *after* you finish using a stack?

✓ First, press Escape (or click "the stop hand") to stop using the stack.

✓ If a score file is being used to keep scores, another student on the class roll can begin the same stack. Choose "the two students" icon and choose another student's name off of the list. The same stack will begin again for that student, but at the beginning or wherever that student may have left off.

✓ You can begin using another stack. Choose "the book" icon and choose another stack. If a score file can be found for that stack, the list of students will be displayed automatically.

5 Leaving the Student program

You can't leave the Student software while using a stack. Choose "the stop hand" first and then choose "the exit door". A message will confirm that you want to leave; type "Y" for yes.

It's break time.

Important

If you have the Grader disk, proceed to the next section.

If you don't have the Grader disk, skip the next section and proceed directly to What's next. It's time to review what you've learned.

Scoring your stack (optional)

Two sections ago you created a new score file; one section ago you posed as a student and generated some scores. This part of the guide shows you how to grade those scores. You will use the Grader disk on an Apple II with a hand control.

Objective:	To score a stack
Stack name:	"First" (or you can use another stack)
Score file name:	"First.Scores" (the name of the stack plus ".Scores")

1 The Grader disk revisited

Start up your Apple II with the Grader disk and have ready the Student disk with the score file.

If not on a network, each student will 'hand in' a Student disk with his or her individual score on it, and you will end up with a pile of Student disks to be graded. Obviously, you have no such pile of disks now... so use the one Student disk.

2 Retrieving your score file

Choose **Open...** on the File menu. A list of the score files on your Grader disk will appear. The score file you want is on the Student disk, so put in that disk and click the Disk button to change drives (1). Look for and click "First.Scores" (2), and then click the Open button (3).

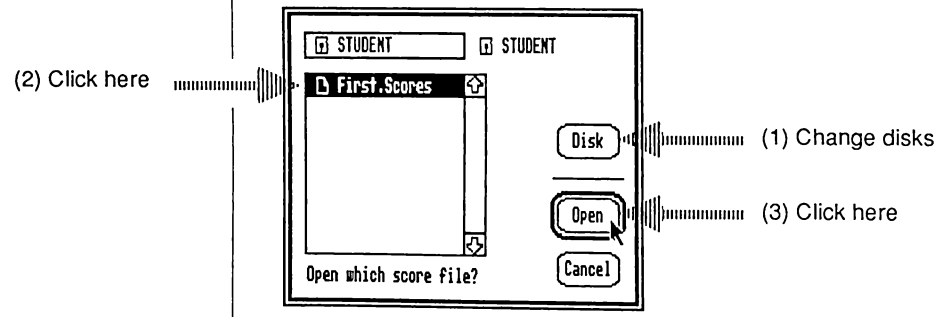
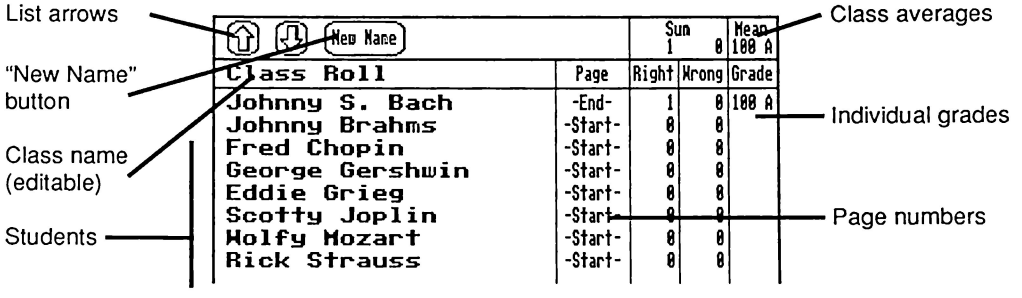


Figure 15
The dialog box for opening your score files

Student names will appear on the list. Whichever student you chose while using the stack will have a score. And the final percentage and letter grade are already figured! Above the list, the class sums and averages are also figured.



❖ *How are grades really figured?* You'll find the mathematics involved in *The Grader's Reference*.

Having only one Student disk to grade, you're done. *If you had a pile of Student disks*, you would insert the next Student disk and click the "from disk" icon. This adds in the score of one more student. You would repeat this process until all disks had been processed, and the outcome would be the cumulative grades for the whole class.

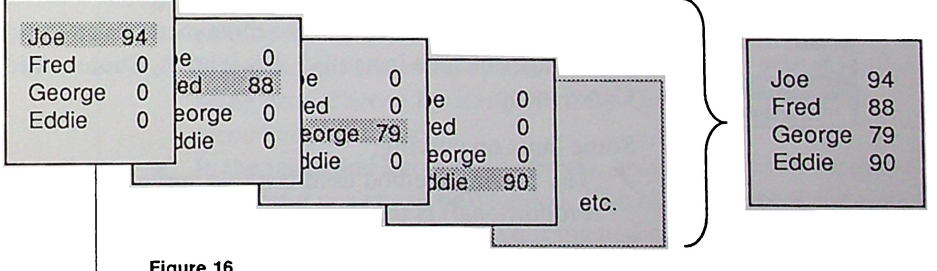


Figure 16
Collecting student scores

❖ *Caution:* if you leave a particular Student disk in the disk drive and 'process' it twice by accident, the scores for that student are added in twice. That student will have twice as many correct answers and twice as many incorrect answers, but the final grade will remain unchanged.

The words between these thick lines represent a break in the routine. To simulate collecting the scores of an entire class (as if you had processed the fabled pile of student disks), a special score file has been put on the Grader disk. Open it now to complete this *Tutorial*, but don't make this a part of your regular grading routine.

Here's the plan: Choose Open... on the File menu, click the Disk button to change back to the Grader disk, choose the file "Musical.Scores", and click the Open button. This will provide a whole class of scores to better demonstrate grading, curving, plotting, and printing.

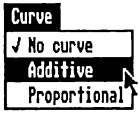
3 Curving the scores

The percentages come from taking each student's number of correct responses and dividing by the total number of responses. With the **Curve menu**, you can curve this percentage in one of three ways. In brief:

- ✓ No curve, of course, displays the raw score.
- ✓ Additive adds to all scores the difference between the highest score and 100%.
- ✓ Proportional divides all scores by the highest score instead of 100%.

Important

Your school may not allow you to curve any scores. Use this feature at your own discretion.



To curve, you choose one of the three methods and watch percentages change instantly! Try it now. Choose **Additive** on the Curve menu.

Some hints on curving:

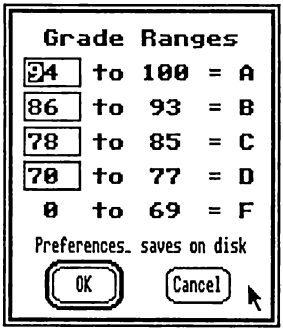
- ✓ The curving method used last (No curve, Additive, *or* Proportional) is the one employed. On the menu, it has a check-mark next to it.
- ✓ At the factory, the curving method is set to No curve. (To set your own standards, look up the Preferences... feature in *The Grader's Reference*.)
- ✓ To obtain the best results, use various curving and grading methods together (grading is discussed next).

The letter grades result from grading the percentages. With the **Grade menu**, you can grade the percentages in one of two ways: ranges or quotas. With ranges, percentages like 94 to 100 can be assigned an "A". With quotas, the top 5% of the class grades, for example, can be assigned an "A". Either way, you have complete control over who makes an "A", "B", "C", "D" or "F".

Important

Your school may have fixed grade ranges, or it may not allow you to grade with quotas. Use these features at your own discretion.

For a taste of how easy this is, choose **By Range...** on the Grade menu, type "90" over the "94" and click the OK button. All of the letter grades will be recalculated instantly!



Some hints on grading:

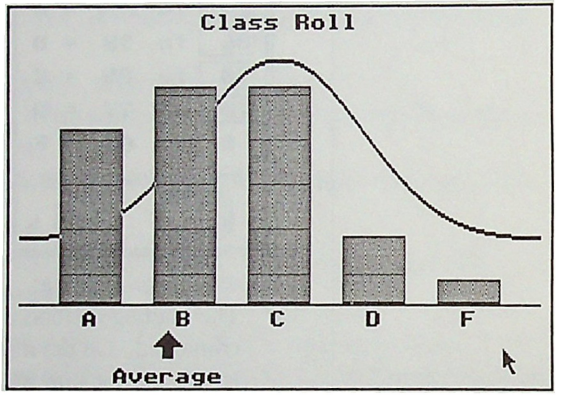
- ✓ The grading method used last (ranges *or* quotas) is the one employed. On the menu, it has a check-mark next to it.
- ✓ If you are not sure what specific ranges or quotas are currently being used, choose By Range... or By Quota... on the Grade menu and make sure.
- ✓ In the range and quota dialog boxes, only the numbers in the little input boxes can be changed. The other numbers change automatically, based upon your manual entries.
- ✓ Two obvious rules: grade ranges cannot overlap and grade quotas must add up to 100%.
- ✓ Standard ranges and quotas are set at the factory, and grading *by ranges* is the standard *method.* (To set your own standards, look up the Preferences... feature in *The Grader's Reference.*)

Grade Ranges	Grade Quotas
94 to 100: A	The top 5% A
86 to 89: B	The next 20% B
78 to 85: C	The next 50% C
70 to 77: D	The next 20% D
0 to 69: F	The last 5% F

Figure 17
The standard grade ranges and quotas set at the factory
Grading *by ranges* is the standard *method* set at the factory

5 Plotting the class results

It's time to plot the grades. Click the icon of "the bar chart" (1) and the class's grades will be plotted in front of a standard distribution curve (2).



(1) (2)

Up until now, you've been looking at the list of students and their grades. But the Grader program has two modes of operation: displaying the list or displaying the chart. You can freely go between the two modes of operation by clicking their icons.

or

See the list See the chart

It gets interesting here! You can curve and grade while looking at the list *or* the chart!! Before, you used the Curve and Grade menus and watched the list of final grades change. In the future, you can watch the chart of final grades change until you feel it's fair.

Use this to your advantage, and save even more time! If you desire to fit your class's final grades under the "standard distribution" curve, here the scoop.

GRADING TIPS

Instead of staring at the list of grades while curving and grading, trying to figure out if you've done the right thing... try these four easy steps to obtain the best overall results.

- ✓ Click "the bar chart" icon first (plot the grades)
- ✓ Use the Curve menu to determine the class's final percentages
- ✓ Use the Grade menu to determine final letter grades (from the percentages)
- ✓ Click "the two students" icon, return to the list, and print out (see below).

Figure 18
The fastest way to get the best grades

6 Printing the grades

Click the "to paper" icon to print out whatever is on the screen. It could be the list or the chart.

If you're printing out the list, only those students which appear on the screen will print out. If you need to scroll to see the rest of the list, do so and then print the rest by clicking the "to paper" icon again. (The Choose Printer... feature on the Special menu is for selecting your printer type; use it if necessary.)

7 Leaving the Grader program

You are now ready to proceed to the next section, *What's next.* It's time to review what you've learned.

What's next

This marks the end of the Tutorial. But it's just the beginning...

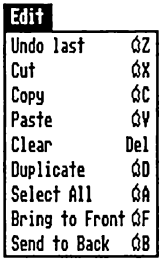
You have experienced the essential features of the software and it's time to strike out on your own. To help you get started, we have collected the following tips. They refer to other parts of this guide which you should read at your convenience:

- **The Page box**

  In creating your first stack in this *Tutorial,* you used the page arrows to move between its five pages. Later, as stacks get larger, the page box will give you the ability to go to any page instantly.

  You can click on the number in the page box (the current page number), type a new page number over it, and press Return. It's much faster than clicking a page arrow repeatedly.

  Refer to: *The Teacher's controls.*



- **Cut, Copy, and Paste**

  These three features can dramatically reduce the time it takes to create and refine stacks. They make it easy to move around material in a stack.

  You can, for example, Cut an item from one page, move to another page, and Paste it there. You can also Copy items and Paste duplicates of them on another page or even in another stack.

  In fact, all of the features on the Edit menu make editing easy. The Edit menu is described in *The Teacher's menus.*

- **Transparent buttons**

  You can stretch a transparent button over any words or pictures on the page, so that the student can click those objects directly.

  This is the excitement in hypermedia. Students need no special instructions to use stacks... they just click on intuitive icons. All the details can be found under the button tool in *The Teacher's tools.*

- **Fields**

  In this *Tutorial,* you have used buttons to collect the student's response. But if you want to ask a fill-in-the-blank question, fields are the solution. Refer to the field tool in *The Teacher's tools.*

■ **Linking stacks**

A stack can have hundreds of pages of text and graphics, but eventually, you will run out of memory. Then, linking stacks will allow you to keep right on developing...

All you do is link a button to a stack name, instead of the usual page number. The result is that stacks can be any size. Refer to the section on *Linking stacks*.

■ **Printing stacks**

You can print out stacks. The Print Page feature on the Special menu will let you print any page in the stack.

Of course, Tutor-Tech is designed to help you create software which will be used on computers; but you may also want to print out your work. Refer to *The Teacher's menus*.

■ **Page types**

Page types make creating motivational and remedial pages easy. Early on in the *Tutorial,* we cautioned you about accidentally clicking these icons in the lower left corner of the screen. They affect the way stacks work. So, until you've read about page types in *The Teacher's controls,* make sure that the little arrow points to the icon of the page for each page. If not, click it.

■ **Clip-art**

One of the disks in this package is bursting at the seams with clip-art and sample stacks. Imported clip-art from the Samples disk will make your stacks look terrific! Refer to *The Samples disk.*

■ **Conclusions**

If you can invest the time, read this guide cover-to-cover. Knowing more features will reduce development time and result in more robust applications of Tutor-Tech.

Now, you can embark on a wide variety of hypermedia projects. You can develop lessons, tests, visual databases, even hyper-adventure games! And you can trade stacks with colleagues who use Tutor-Tech.

We welcome your comments and suggestions and, should you need assistance, we offer Product Service and Support (see *Appendices*).

The Teacher's tools

The tools in the Teacher's toolbox help you type, draw, and use buttons. Each tool is described individually in this section. If you like to paint, you can do so in one of the popular painting programs and import your artwork into your stacks (see the Import... feature in *The Teacher's menus*).

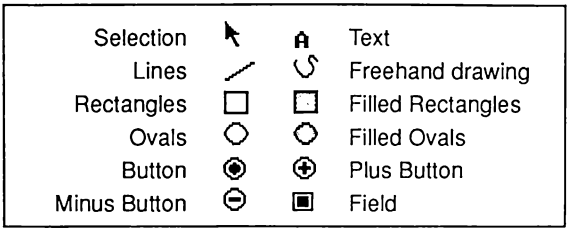


Figure 19
The Teacher's tools

Click a tool to highlight it, and then move onto the page to use it. The highlighted tool is the one in use until you click another tool.

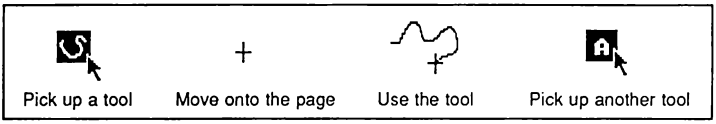
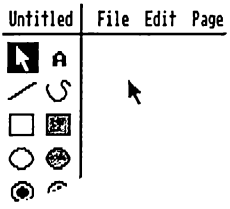


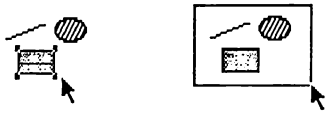
Figure 20
Using a Teacher's tool

1 Selection

The selection tool is for selecting words or pictures on the page. Its cursor is the **pointer**. You can select one item or many items with the pointer, and then adjust them or move them around.



To select one item, move the pointer to that item and click it. To select several items at once, draw an imaginary box around them by dragging the pointer across the page.



click to select a single item

drag to select several items

■ Selection handles

When an item is selected, **selection handles** appear around it. Selection handles indicate which items are selected and, therefore, which items will be affected by your actions. You can:

If ONE item is selected	If MANY items are selected
✓ Move it: drag the item	✓ Move them: drag any item
✓ Stretch it: drag one of its handles	✓ Stretch them (one at a time)
✓ Delete it: press the Delete key	✓ Delete them: press the Delete key
✓ Change its pattern: use the Pattern menu	✓ Change patterns: use the Pattern menu
✓ Change its color: use the Color menu	✓ Change colors: use the Color menu
✓ Change its line type: use the Line menu	✓ Change line types: use the Line menu

Figure 21
Dealing with one or more selected items

To arrange items evenly or to align them with one another, use the grid. Choose Turn Grid On on the Special menu and then use the selection tool to select and move items.

❖ *If you select and move colored objects,* do so with the grid *on* to preserve their exact appearance (see Turn Grid On on the Special menu). Because of the way color is displayed on the screen, if you move a colored object (i.e. a red rectangle) just a little, its appearance may vary a pixel in either direction to preserve its color (i.e. the sides of the red rectangle may grow a little thicker or thinner).

■ Layered Selection ("Command-clicking")

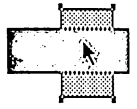
Ever had trouble selecting a buried item?

Overlapping items are no longer a problem, because you can now select items underneath other items, or "through layers". This feature uses the Command key (⌘).

❖ *Macintosh/PageMaker users:* This is just like layer selection using the Command key in PageMaker® on the Macintosh®.

Here, one box covers up another. Move the selection pointer over the items, hold down the Command key (⌘), and click until the *desired* item is selected.

⌘-Click once



⌘-Click twice

Selecting a buried item this way is sometimes called "Command-clicking".

❖ *Joystick users:* Since you can *not* use the Command key, you can simulate it by holding down the Control key and pressing dash ("–"). The next click will be a "Command-click".

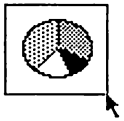
■ **Deselection ("Option-clicking")**

Ever select one too many items?

Instead of selecting all of the items over again, you can now just *deselect* the undesired item. This feature uses the Option key (⌥).

❖ *Macintosh users:* This is just like deselecting items using the Shift key in most Macintosh software.

Here, we have four pieces of pie and, for emphasis, we want to pull away three pieces together. First use the selection tool to select the whole pie. Then move the pointer to the *undesired* item, hold down the Option key (⌥) and click. The rest of the pie will stay selected and can be adjusted as necessary.



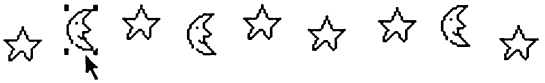
Select items

⌥-Click

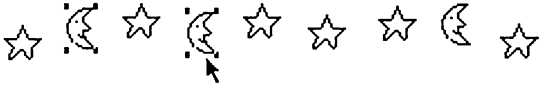
Adjust

This is sometimes called "Option-clicking". Now, you will see another way that Option-clicking can be used.

You can select items which are not adjacent, such as these moonlets scattered amidst a starbank. Click the first one first:

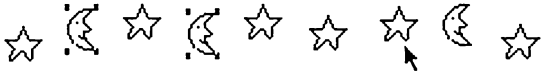


Hold down the Option key (⌥) and click the next one:



Notice that the first moonlet selected stayed selected.
Now, hold down the Option key (⌥) and click a star:

Oops! We want only moonlets. You can also use the Option key (⌥) to deselect the star. Option-click the star again:

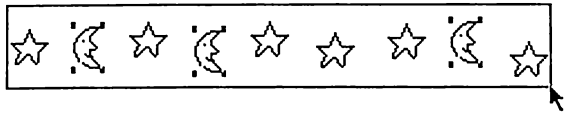


Finally, Option-click the last moonlet:

There! The three moonlets are selected. So, in summary, Option-clicking does one of two things:

- ✓ if an item is not selected, it selects it;
- ✓ if an item is selected, it deselects it.

But there's more... you can "Option-drag" and have the same effect on many items at once. For example, if you hold down the Option key (⌥) and drag a selection box around all of our star-stuff:



Selection is reversed. Now we have all stars and no moonlets.

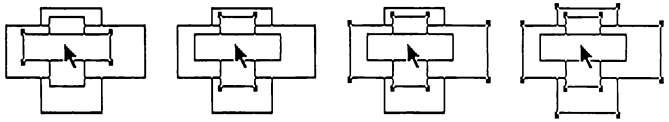
Option-clicking (and Option-dragging) are very helpful if you work with lots of items.

■ **The best of both worlds ("Command-Option-clicking")**

Command-clicking and Option-clicking do different things, but they can work together. Can you imagine how?

If you hold down the Command *and* Option keys (⌘-⌥), and click with the selection pointer, you'll select each item through the layers. This is called "Command-Option-clicking".

Here's a pile of boxes to illustrate. Command-clicking would only move through the pile, but Command-Option-clicking moves through the pile *and* selects items as it goes.



Click **⌥-Click** **⌘-⌥-Click** **⌘-⌥-Click**

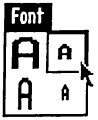
Experiment a little!

❖ *Joystick users:* Since you can *not* use the Command key, you can simulate it by holding down the Control key and pressing dash ("–"). The next Option-click will be a "Command-Option-click".

2 Text

The text tool is for typing. Its cursor is the **I-beam**. Click the text tool (1) and then click the I-beam on the page *where* you wish to begin typing (2).

(1) (2)



The *standard* text size matches the size of the letter "A" in the tool. But you can change this... using the Font menu. The Font menu has four text sizes, from small to large. To use a different text size, choose it on the Font menu and then click the I-beam to begin typing.

Some helpful hints while typing (whatever text size you use):

- ✓ The right side of the page is your **right margin**. You cannot type past the right margin; press Return to move to the next line.
- ✓ The **Return key** will begin a new line. The cursor will move down to the next line, immediately below the first character of the former line.
- ✓ The **Delete key** corrects mistakes. Press Delete and the cursor will move back one space, deleting the last character. To delete a word, press the Delete key several times.
- ✓ The **Tab key** inserts spaces. Press Tab and the text in front of the cursor will be pushed forward to make room for a space. To insert a word, press the Tab key several times.
- ✓ Type right over words to replace text. Use Delete and Tab as necessary to make things fit.
- ✓ The **arrow keys** can move the cursor up and down a line, or forward and backward a space. The hand control gives you complete freedom to type where you choose (down to the pixel), but arrow keys move the cursor equally spaced distances.

■ Editing

The text tool is also for editing. To revise some text, click the text tool (1) and then click *directly* over the words to be changed (2). All of the above hints still apply.

(1) (2)

❖ *Hint:* When editing text of any size, you need *not* choose its text size on the Font menu first. The text tool will, when you click over existing text, recognize it regardless of its text size.

Text can be moved with the selection tool (see). To move an entire paragraph, make sure you select all of the lines in the paragraph (drag a selection box around them) and then move them.

■ Variables

*What you see is what you get, except **variables**.* Everything you type will appear exactly that way to the student, except variables, which allow you to insert personalized information into your stacks. The five variables are:

•**First**•	The student's first name
•**Whole**•	The student's whole name
•**Asked**•	The number of questions answered so far (•**Right**• plus •**Wrong**•)
•**Right**•	The number of questions answered correctly so far
•**Wrong**•	The number of questions answered incorrectly so far

Using variables is completely optional. If you decide to use them, type them in as shown above with a **bullet** (i.e. •) on either side to stand out from the regular text. A bullet results from holding down the Option (⌥) key and pressing 8. Here are some examples you might find in a stack:

Good Morning, •First•!

Hello •Whole•. Are you ready?

Super! So far, you've answered •Right• right out of •Asked•.

When the student uses this stack, the variables are replaced by information:

Good Morning, Johnny!

Hello Johnny Appleseed . Are you ready?

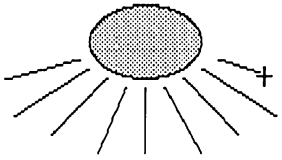
Super! So far, you've answered 5 right out of 7.

If you use either •**First**• or •**Whole**• in a stack, the software will make sure it knows the student's name before using that stack. How does the software do this?? In one of two ways:

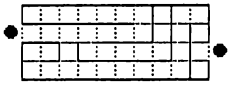
- ✓ If you're keeping score with the help of the Grader disk, the class roll (in the score file) already has the student's name and score. That name will be used.
- ✓ If you are not keeping score, the software will ask the student to type his or her whole name before the stack is used.

3 Lines

The line tool is for drawing lines in any direction. Drag from one endpoint to the other.

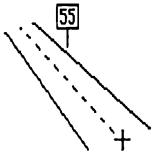


To easily construct perfect vertical and horizontal lines, choose Turn Grid On on the Special menu. Incremental, dotted lines will appear on the page. As you draw lines or other graphics, the cursor will *stick* to the grid. Using the grid is not mandatory for perfect construction, but it makes life easier.



For more about using the grid, look up the Turn Grid On/Off feature under *The Teacher's menus*.

You can draw dashed and dotted lines with the help of the Line menu. Choose a new line type and keep drawing.



You can draw lines in color; the Line and Color menus work together. For example, to draw a solid blue line, you would choose a solid line type on the Line menu and blue on the Color menu. Experiment!

After lines are drawn, you can move and stretch them, and change their appearance with the selection tool.

■ **Moving lines**

Lines can be moved: select them and drag them to new locations. If several lines constitute an object on the page, you can move them all together (drag a selection box around them first).

■ **Stretching lines**

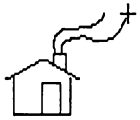
Lines can be stretched: select them and drag their handles to new proportions. Stretching is great for making adjustments; it saves you from completely redrawing lines.

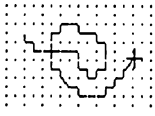
■ **Changing the appearance of lines**

The appearance of lines can be changed: select them and then choose from the Color and Line menus. The lines change right away.

4 Freehand drawings

The freehand drawing tool is for sketching. It's like a real pencil, leaving a trail wherever you drag. If the grid is on, a coarse-looking trail will result.





❖ *For more about using the grid,* look up the Turn Grid On/Off feature under *The Teacher's menus.*

You can sketch in color and with various line types (dotted, dashed, solid). Use the Line and Color menus to produce a desired effect.

After sketching freehand, you can move it and change its appearance with the selection tool.

■ **Moving freehand drawings**

Freehand drawings can be moved: select them and drag them to new locations. If several of them make an object on the page, you can move them all together (drag a selection box around them first).

■ **Changing the appearance of freehand drawings**

The appearance of freehand drawings can be changed: select them and then choose from the Color and Line menus. They change right away.

❖ *If you try to change freehand drawings from black&white to color or vice versa,* a message will inform you it can't be done. This has to do with the way your Apple screen works. A single dot (or pixel) on the Apple's screen can be black or white, but in order for a color to appear, it takes four dots close together. So, when you sketch in black&white, you have the advantage of extra detail. You could not convert that to color and keep the detail. If you really need to change a freehand drawing from black&white to color, or vice versa, delete it and redraw it.

5 Shapes (rectangles and ovals)

The shapes you can draw include rectangles, filled rectangles, ovals, and filled ovals. The cursor used to draw shapes is called the **crosshair.** +

Rectangles are drawn corner to corner. Drag from one corner to the opposite corner; then release the button on the hand control when you like the proportions. The crosshair helps you be precise.

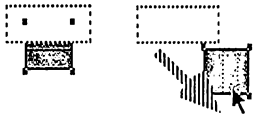
Filled rectangles are drawn the same way, but are filled with the current pattern or color (the last choice from either the Pattern or Color menu). You can draw a rectangle, change the pattern, draw another rectangle, etc.

Ovals are stretched like rubber bands. You draw them like rectangles, from corner to corner (as if they had corners). It's like drawing a circle inside an imaginary box.

After shapes are drawn, you can move and stretch them, and change their appearance with the selection tool.

■ Moving shapes

Shapes can be moved: select them and drag them to new locations. Put them just where you want them.



■ Stretching shapes

Shapes can also be stretched: select them and drag their handles to new proportions. Making an adjustment like this is much easier than redrawing the whole shape.

Changing the appearance of shapes

Another possible adjustment concerns looks. You can change the borders and filled regions of shapes. Select the shape first; then freely make changes with the Line, Pattern, and Color menus.

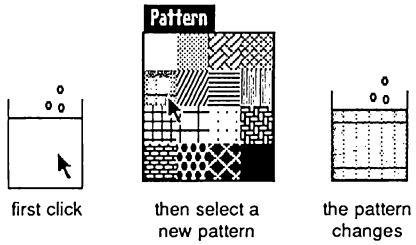
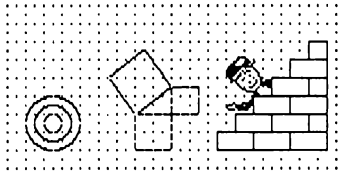


Figure 22
Changing the fill pattern of a rectangle

With the grid on, drawing perfect squares and circles is easy. Choose Turn Grid On on the Special menu and then draw your shapes. Since the crosshair will snap on to the grid, constructing shapes of certain sizes becomes effortless. Look what you can do!



6 Buttons

Buttons are normally used on pages of information, situations such as "click here to continue", "click here to review", or "which topic would you prefer next?" The button allows the student to proceed to another page and retrieve associated information.

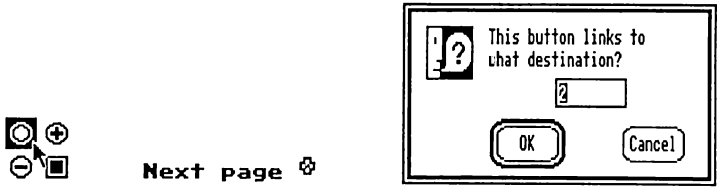
Plus and minus buttons are used on pages with correct and incorrect answers such as true/false or multiple choice questions. Plus buttons are put beside the words or pictures representing the correct answers. Minus buttons are put next to the incorrect answers. In a tutorial, plus and minus buttons normally lead to motivational or remedial material. However, in a testing situation, they usually lead to the next question. It's up to you.

- ❖ *If you are scoring:* a correct answer is tallied every time a student clicks a plus button, and an incorrect answer is tallied every time a student clicks a minus button. Regular buttons neither contribute to or detract from the student's score.
- ❖ *Buttons versus fields.* If you want to present information or ask a question, use buttons. But if you want to create a fill-in-the-blank question, use a field as discussed in the next section.

Every button is linked to a destination and, when a student clicks it, the stack will advance to that destination. By linking buttons to the proper destinations, you can send students to any other page:

- ✓ To the next page of information,
- ✓ Back a question or on to the next question, or
- ✓ To a page of motivation or remediation.

To put a button on a page, click the tool (1), move the **cross** cursor to the desired spot on the screen and click (2), enter the destination, and click the OK button (3). When typing in the destination, type over the destination already there (use the space bar to erase stray characters). If you decide not to put a button here, you can click the Cancel button.



(1) (2) (3)

Figure 23
Positioning a button

Moving a button

A button can be moved with the selection tool. Select it first and then drag it. This way, you can easily 'line up' the button beside another item.

Whenever two or more buttons are used, neatly arranging them will give your stack an overall good appearance.

■ Changing a button

Any button's destination can be changed. Choose that button's tool (if not already highlighted) and *click on top of the existing button on the page*. You will be shown the old destination and asked for a new one; type it and click OK. The destination can be changed any number of times.

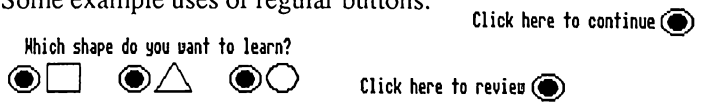
The button type can be changed to plus, minus, or back to regular. Choose the button tool of the desired type and *click on top of the existing button on the page*. You will then have a chance to change the destination as described above, but click the OK button even if no change in the destination is necessary. Changing the button type can be done any number of times.

■ Hints

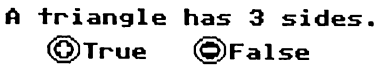
Some rules of thumb for employing buttons:

- ✓ To the student, plus and minus buttons (and regular buttons) all appear as regular buttons.
- ✓ A stack can have many pages of information and questions, so spread out your material into manageable portions. In general, try not to squeeze too much information or more than one question on a page.
- ✓ A page can have many buttons. As a result, you can create various options to "continue", "review", "skip this section", "start all over", etc. In terms of multiple choice questions, you are not limited to the standard 3, 4, or 5 choices.
- ✓ Questions usually have one right answer (only one plus button among several minus buttons), but you may have more than one correct answer if you wish. You may also use regular buttons on a page with a question, for other options (see below).

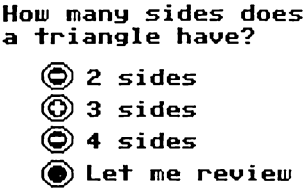
Some example uses of regular buttons:



An example true/false question using plus and minus buttons:



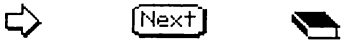
An example multiple choice question using plus, minus, and regular buttons:



If you like to reward correct responses with motivation, you're in luck. You can use the optional feature of page types (see under *The Teacher's controls*) to create generic motivational pages; these generic pages are picked randomly and displayed briefly whenever a correct response is given on any page in the stack, and then the stack advances to the true destination. This way, you can avoid creating a specific page of motivation after each question.

■ **Covering up buttons**

Buttons can be covered up with clip-art and still work. Then, if a student clicks on that piece of clip-art, the click 'falls through' to the buttons underneath. Covering up buttons is discussed in detail in *The Samples disk.*



■ **Transparent, stretchable buttons**

Buttons can be made transparent *and* stretched to any size around other objects. The student can then click over an area and advance to a button's destination.

To create a transparent button, pick up a button tool (1), drag over the desired area (2), and enter a destination normally (3). The region of the button will be shown (4):

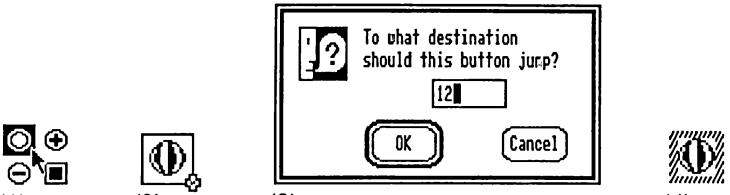
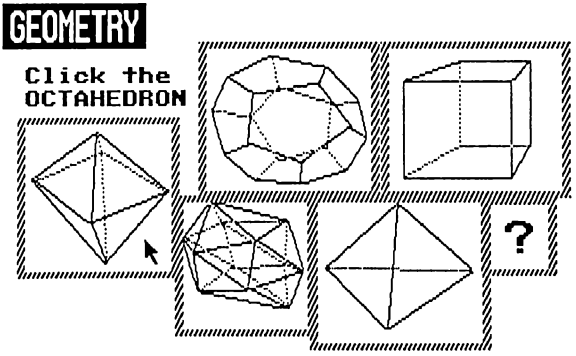


Figure 24
Positioning a transparent button

After creating transparent buttons around each item, you will see their regions on the page:

Of course, when you preview the stack or use the stack with the Student program, those buttons become transparent:

Here's another example, but with larger objects. Notice that the transparent buttons more than surround the items. A little extra room around an item will make clicking it easier; it's user-friendly:



Transparent buttons have all the comforts of regular buttons:

- ✓ They can be regular, plus, or minus buttons.
- ✓ You can edit them; pick up a button tool and click them.
- ✓ You can move and delete them; use the selection tool.
- ✓ You can resize their rectangular areas; use the selection tool and drag their handles to any size, large or small.

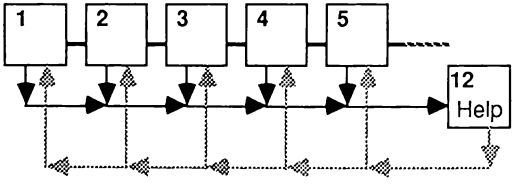
❖ *Advanced users:* When buttons overlap, and a user clicks there, the button *in back* (first on the page) will be chosen. To give a button precedence, select it and choose Send to Back.

■ Pushing and popping pages

In a stack, you may want to create a page, i.e. with general help, which is a destination from several different pages. You may also want the student to return, afterward, to whatever page they were on when they requested help.

To do this, you *push* the current page behind by linking to a page number *in parentheses*. Then, you *pop* a page forward—the one pushed behind—by linking to **(RETURN)**.

The example stack below has a "help" button on every page. The dark arrows show that each "help" button is linked to **(12)**. Page 12 is the page with "help". The light arrows show that the button on page 12 is linked to **(RETURN)**.

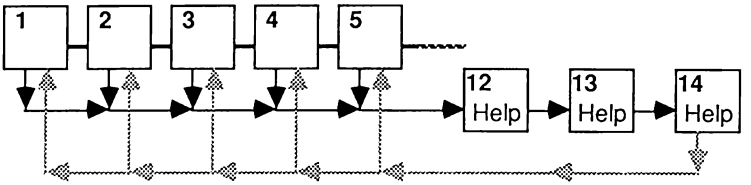


This way, students can take a 'detour' and get some help before continuing through the stack.

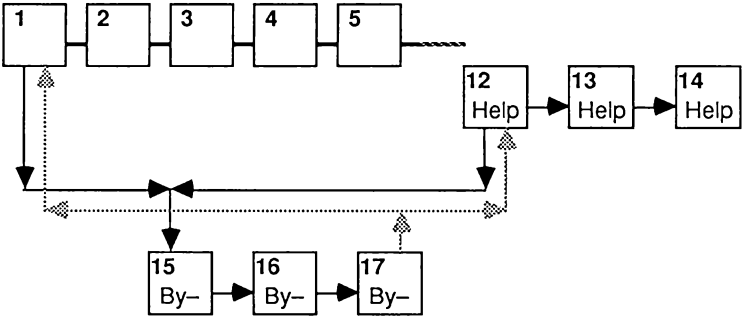
Notice that the buttons on pages 1 through 5 could have linked to 12, but without parentheses, no page would be pushed behind. When it came time to **(RETURN)**, there would be no page to pop forward.

❖ *Note:* When a student clicks a button which links to **(RETURN)**, and no page has been pushed behind, the button will instead link to page 1 (having nowhere else to go).

When you push a page behind, it need not be popped forward on the next page. For instance, "help" might go on for several pages. Here, buttons on pages 12 and 13 link to the next page number normally, and a button on page 14 links to **(RETURN)**.



It gets even better! You can push more than one page behind. Suppose you want to give yourself credit on this stack, and you create a series of pages which give your name, date, why you did this, etc. Just like "help", you can put "By–" buttons here and there throughout the stack.

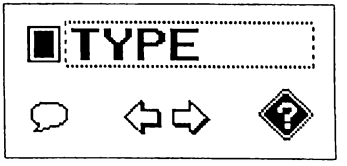


So, whether a student has just started on page 1, or if a page is pushed behind for some help, the credits for this masterpiece are just a click away.

❖ *Note:* You can *not* return to the previous page after linking from one stack to another or, if you are keeping score, after resuming use of a stack (resuming where you left off last time).

■ Mixing buttons and fields

You can mix buttons and fields on the same page. This gives you the added flexibility to request a typed response as well as offer buttons.



Fields are normally used on pages with fill-in-the-blank questions. Unlike buttons, students will not need to click them; they just begin typing. Fields should be positioned on the page so that the student has ample room to type a response. The student's typed response will be evaluated as right or wrong.

- *If you are scoring:* a correct answer is tallied every time the student's response is evaluated to be correct (see below). All other responses tally an incorrect answer.
- *Fields versus buttons.* If you want to create a fill-in-the-blank question, use a field. But if you want to present information or ask true/false or multiple choice questions, use buttons as discussed in the last section.

Every field is linked to two destinations: one for correct responses and one for all other cases. The stack will advance to one of the two destinations when the student finishes typing and presses Return. You can send students to:

- ✓ A page with motivation for correct responses,
- ✓ A page with remediation for incorrect responses, or
- ✓ In a testing situation, all responses go to the next question.

To put a field on a page, click the tool (1), move the **cross** cursor to the desired spot on the screen and click (2), type your answer, and press Return (3). The student's response will be considered correct *if your answer is found within it.* When the dialog box appears, type the destination for a correct response, press Return, type the destination for all other responses, and press Return again (4).

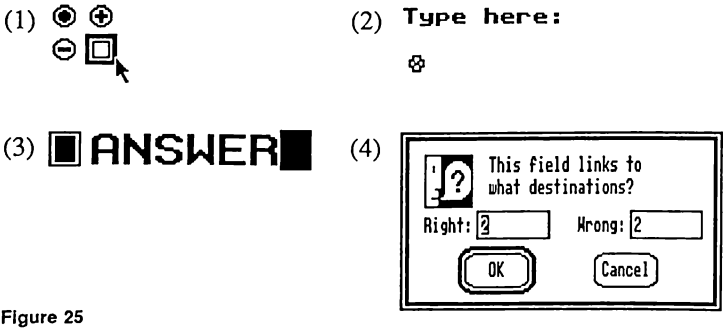


Figure 25
Positioning a field

The student's response must contain your answer to be considered correct. Upper and lower case differences and extra spaces won't matter, for instance:

Question:
Who was the first President of the United States?

Your answer:
Wash

Some correct answers:
Washington washington Wa shingto n Washengton

Some incorrect answers:
Weshington Wshington Adams

Figure 26
How responses are evaluated on fields

- **Moving a field**

A field can be moved with the selection tool. You may decide it looks better somewhere else on the page. Select it first and then drag it; however, leave enough room to the right of the field for the student's response. *The student can only type up to the right side of the screen!*

- **Changing a field**

A field's answer and destinations can be changed. Choose the field tool and then *click on top of an existing field on the page*. First, you will be asked for a new answer: type over your old one (using the space bar to erase any stray characters) and press Return, or just press Return if it is still suitable. Next, you will be shown the old right and wrong destinations and asked for new ones. Use the hand control or the four arrow keys to move the cursor and type over the destinations; then click the OK button. A field's answer and destinations can be changed any number of times.

The field itself cannot be changed to a button. If you want to convert a fill-in-the-blank question to a true/false or multiple choice question, remove the field with the selection tool (select it and press Delete). Then begin reworking the page.

Hints

Some rules of thumb for employing fields:

- ✓ Your stacks can have any number of fill-in-the-blank questions, and if you employ more than one per page, the student can only respond to one of them.
- ✓ Don't make a practice of asking fill-in-the-blank questions which have several short, possible answers. A student could type several short answers, hoping to get one right (see below).
- ✓ Possible incorrect answers sometimes *incorporate* the correct answer (highlighted in the figure below).

Questions	Answers	Incorrect responses considered correct
What is 1 plus 1?	2	22 2.2 1 2 3
Simplify 2X+2-1	2X+1	12X+1 2X+12 2X+1-2
The opposite of false?	true	true or false
Is this a Do or a Don't?	do	don't

Figure 27
The potential abuses of fields

Fields make fill-in-the-blank questions possible, but more than that, they are an alternative to multiple choice questions which are too obvious (when one answer is a give-away).

If you like to reward correct responses with motivation, you're in luck. You can use the optional feature of Page types (see under *The Teacher's controls*) to create generic motivational pages; these generic pages are picked randomly and displayed briefly whenever a correct response is given (when the student's answer is evaluated to be correct), and then the stack advances to the true destination. This way, you can avoid creating a specific page of motivation after each question.

The Teacher's controls

The Teacher's controls are a collection of visual cues on the screen. You operate some of them by clicking them. Each control is described individually on the next few pages.

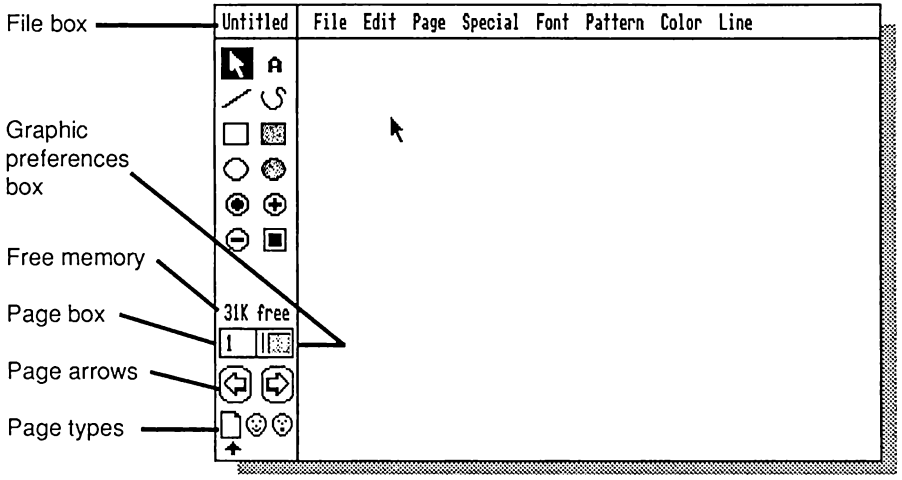
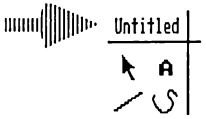


Figure 28
The controls on the Teacher's screen

1 The file box



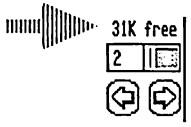
The file box in the upper left corner of the screen shows the name of the **current stack**; that's the one you're working on. If you are distracted, or really get involved, the file box will tell you what stack this is.

If you just started up an Apple II with the Teacher disk, you're ready to create a new stack. The name "Untitled" will be used until you save this stack and give it a name.

■ How to put away the menus

You can click the file box to put away or bring back the menus (across the top of the screen). With the menus put away, you can use the entire page to create your stack; it's some extra work space. Whether you use the entire page or not, the Student program has no menus and will always display the entire page to the student.

2 Free memory



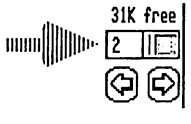
Free memory, shown below the toolbox, tells you the amount of unused memory in the Apple II.

When you develop a stack, all of the words and pictures on all of the pages—together—determine the size of your stack. You have nearly 32K available when you first start up the Teacher disk (that's 32 times 1024 bytes or characters). As your stack grows, free memory diminishes.

When free memory nears zero, it's time to read about *Linking stacks* (under *Managing your stacks*). Your stacks can go on and on forever, but not in memory. You need to link them together on disk and *Linking stacks* will tell you how.

❖ *Advanced tip:* You can watch free memory fluctuate. If you are an observant person, you may notice that words eat up one byte per letter (a lean investment), lines, rectangles, and ovals eat up about ten bytes each (still economical), and freehanded sketchings demand half a byte for every dot along the trail (a luxury indeed). Pictures brought into stacks with the Import... feature are truly extravagant; so, we have provided an option to *pack* the pictures or make them occupy less memory in a stack (see *Import...* in *The Teacher's menus*).

3 The page box



The page box underneath the toolbox on the left side of the screen shows the number of the **current page**; that's the page being worked on at the moment.

If you just started up an Apple II with the Teacher disk, the current page will be page 1. The software has prepared a new stack for you with one blank page.

■ Moving quickly to other pages

To move immediately to another page, click *directly* over the page box, type the desired page number over the current page number (using the space bar to erase stray characters), and press Return. The desired page will appear on the screen and you can continue work.

The page box is not for adding pages; use the Add page features on the Page menu to add pages. The page box helps you move to some other specific page—perhaps a distant page.

If you want to move forward or backward only one page, it's more convenient to use the page arrows (coming up soon).

4 **Graphic preferences box**

The graphic preferences include the last used line type and the last used color or pattern. These two preferences appear in the graphic preferences box, which is underneath the toolbox on the left side of the screen.

The first preference is chosen with the Line menu. It always starts out as a solid line. The line type preference determines the appearance of lines, freehand sketching, and the borders of rectangles and ovals.

- *Advice:* If you choose "no line" on the Line menu, you will be unable to draw lines, freehand, and nonfilled rectangles and ovals because they would be completely invisible. If a message reminds you about this, choose a different line type on the Line menu and try again.

The second preference is either a color or a black&white pattern. It always starts out as a gray pattern.

If it is a pattern, it will:	fill the regions of filled rectangles and filled ovals.
If it is a color, it will:	fill the regions of filled rectangles and ovals, and in addition it will color lines and freehand sketching, and color the borders of nonfilled rectangles and ovals.

- *Note:* A chart illustrating the effects of the graphic preferences on each drawing tool can be found in the *Appendices*. It may help visualize the uses of graphic preferences.

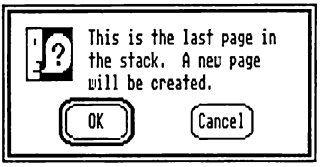
5 **Page arrows**

The two page arrows move you forward and backward through a stack, one page at a time. It's a convenient way to move around, because you can go as fast as you like merely by clicking (1). The page box will at all times tell you what page is the current page (2).

(1) (2)

❖ *Advice:* If you want to go to a distant page, which would mean clicking the page arrows many times, try using the page box (described two sections ago).

The right page arrow has a special function. When you are developing a stack, you may often need to add pages after the last page in the stack. Normally, you would choose Add after on the Page menu, because no page exists out there. Instead, if you click the right page arrow (1), the software will ask you if you intend to add a page after the last page. You can click the OK button or press Return (2).

(1) (2) 

Conversely, however, the left page arrow can *not* add pages before the first page in a stack. If you are on page 1 and click the left page arrow, a message will remind you of this fact.

6 Page types

The three page types make it easy to create special motivational pages and remedial pages. *They are completely optional;* you can create fully functional stacks without using them.

The icon of the piece of paper represents a **normal page** in a stack. It can be a page of information, a question, or whatever else you dream up. The crucial point is that a student always responds to buttons or fields on this type of page to continue.

The happy face represents a generic **motivational page.** Instead of anchoring a page with motivation to a specific question, you can make the motivation generic. If you create generic motivational pages, one of them will be randomly picked and displayed whenever the student responds correctly on a normal page (clicks a plus button or answers a field correctly). It only appears for three seconds, plays the three musical notes C-E-G, and then the stack advances to the true destination of the button or field (as you would

expect). Because a motivational page is chosen randomly:

- ✓ Its position in the stack is inconsequential,
- ✓ It should *not* have any buttons linking it to anywhere,
- ✓ Buttons and fields on other pages should *not* link to it, and
- ✓ If the stack has only one motivational page, it will always be chosen (not so random).

If no motivational pages exist in a stack, every correct response in this stack will advance directly to its true destination (a regular stack).

The surprised face represents a **remedial page**. Remedial pages are altogether different from motivational pages; they give you the chance to ask follow-up questions which will not affect the student's score. All plus buttons, minus buttons, and fields employed on remedial pages will still function properly; they just won't affect the student's score. Therefore, only questions on normal pages count.

■ The advantages of using page types

Why have these page types? If you find yourself creating pages with motivation after each question, and they all basically say "Super job!" (nothing specific to the question), you can instead create generic pages of motivation and save time. Furthermore, if you find yourself avoiding follow-up questions because the final score may be confused, you can use remedial pages.

■ Creating pages of different types

Creating pages of different types is easy: you create them normally and, when finished, you move the little arrow from one page type to another. Specifically:

Every new page starts out as a normal page.

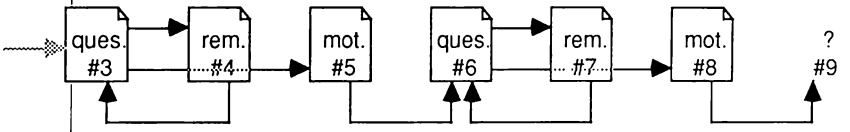
Add words and pictures to a motivational page, *but don't add any buttons or fields* (buttons can not directly link to this page, nor can a button link this page to any other page). Then, drag the little arrow from the piece of paper (1) to the happy face (2). You may also click directly on the happy face.

(1) (2)

Add words, pictures, buttons, and fields to a remedial page. Then, drag the little arrow from the piece of paper (1) to the surprised face (2). You can also click directly on the surprised face.

(1) (2)

Remedial pages boil down to being normal pages without the score keeping (easy!). However, to help you visualize using motivational pages, being a bit more involved, here's a sample stack whose structure has two questions, each with its own motivation and remediation. The page numbers run from 3 to 9; it can take a good number of pages to provide motivation *and* remediation for every question. Here's the stack without use of generic motivational pages...



...but if generic motivational pages are used, its structure might resemble the following. Some motivational pages can be created at the end, from pages 25 to 28. When students respond to the questions on pages 3 and 5 below, they will receive randomly selected motivation. The result? The motivational pages are used for all questions; they are used efficiently.

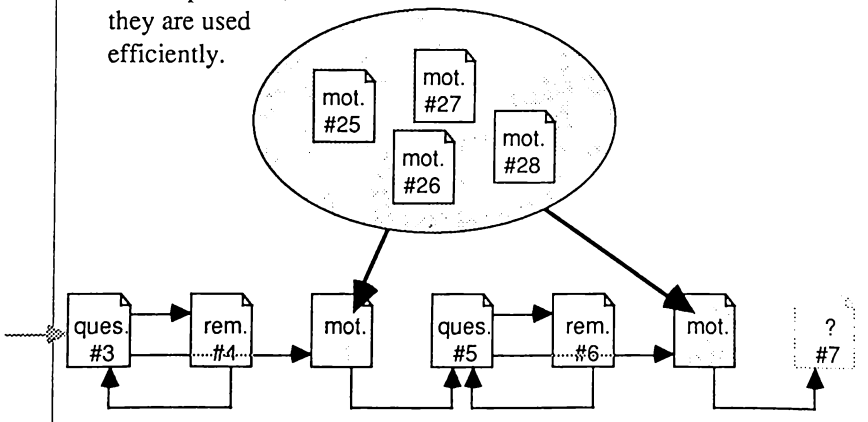


Figure 29
Employing motivational and remedial pages

The above stack isn't as complex as it appears. It simplifies greatly if we remove the place holders for randomly picked pages (shown for illustrative purposes only). Structurally, correct responses go directly to the next question. Do you see the savings?

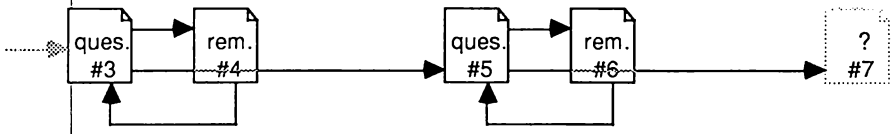


Figure 30
The savings from employing motivational pages

The overall advantage of using different page types is that your development will quicken. In addition, using generic motivational pages will mean stacks have fewer pages, which means they will be smaller, which means you can put more stacks on a disk.

■ Using the sample motivational pages provided

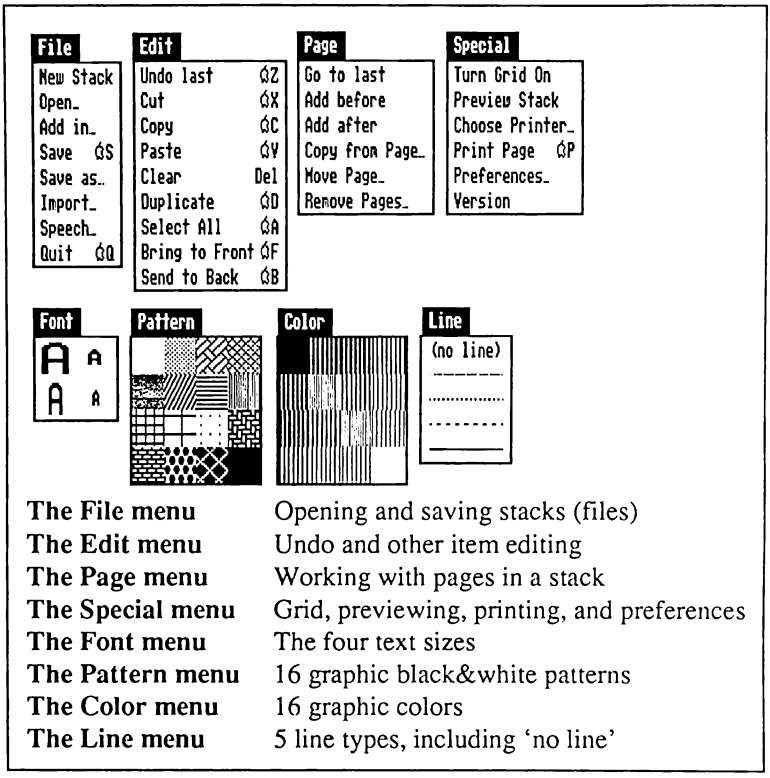
When you finish a stack, you can Add in... some super motivational graphics included on your Teacher disk!

Choose Add in... on the File menu, choose "Motivate", and click OK. The generic motivational pages in "Motivate" will be added on to the end of your stack. Then, you save your stack. When the stack is used, those generic pages—which have become a part of your stack—will motivate and delight students.

The motivational material in "Motivate" is compatible with most subjects and levels. It's a library of motivational material. If you like, you can add and remove pages from this library. Make it your own. To change the sample file "Motivate", open it as you would a normal stack and work with the pages. However, make sure every page is a generic motivational page (move the little arrow to the happy face). When you are finished developing it, save it and the library will be up-to-date. You could also develop different motivational files for different audiences, i.e. one for very young children, one for adults, etc.

The Teacher's menus

Here are the Teacher's menus. Each menu feature is described individually in this section.



The File menu	Opening and saving stacks (files)
The Edit menu	Undo and other item editing
The Page menu	Working with pages in a stack
The Special menu	Grid, previewing, printing, and preferences
The Font menu	The four text sizes
The Pattern menu	16 graphic black&white patterns
The Color menu	16 graphic colors
The Line menu	5 line types, including 'no line'

Figure 31
The Teacher's menus

Command key short cuts

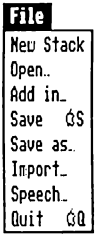
Popular menu features have "Command key" short cuts. For instance, Save on the File menu has a Command key "S". If you save your work often, and you should, you can hold down the Command (⌘) key and press "S" instead of pulling down the menu each time. The other command keys are shown on the menus, next to their respective menu features.

❖ *Joystick users:* Instead of using the Command key, use the Control key for these menu short cuts.

■ Putting away the menus

You can put away and bring back the menu titles by clicking the file box (described in *The Teacher's controls*). Putting away the menus gives you a little more workspace on each page.

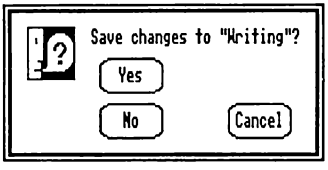
1 The File menu



The File menu has features which involve whole stacks: starting new ones, opening existing ones, saving them, importing pictures and speech into them, and more. You also use the File menu to leave the Teacher program.

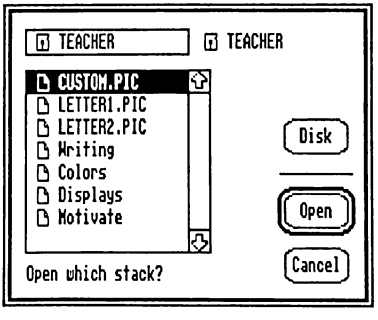
■ New Stack

Choose New Stack to begin a new stack. It will clear the screen and create an untitled stack with one blank page. However, if you were working on another stack and hadn't saved your changes, you will first be asked if you want to save those changes.



■ Open...

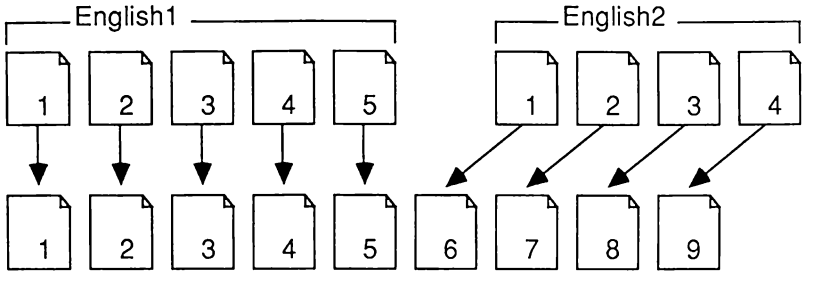
Choose Open... to retrieve a stack. Maybe it wasn't finished, or maybe it needs fixing. A dialog box will ask you to choose a stack. Usually, the stack you're looking for is on the list, so you click its name and then click the Open button. However, if the desired stack does not appear, it may be on another disk or in another sub-directory (see *Working with disks* in the *Appendices* if you need help).



Only one stack can be open at a time. If you're already working on one stack, save your work before you open another stack.

■ **Add in...**

Choose Add in... to merge two stacks together. The stack you choose will be added to the end of the current stack.



Merging stacks is helpful for:

- ✓ Adding in material from another stack, so you don't have to recreate it (you could use Copy and Paste in small cases),
- ✓ Actually merging two smaller stacks together,
- ✓ Adding in stock motivational pages.

❖ *For paranoid users:* If you are the sort of person who likes to only work on copies of their stacks (keeping an earlier version as a backup copy), then the Add in... feature can help you. If you choose New Stack on the File menu and then add in the stack you want to work on, you have effectively created a copy of your stack which cannot be (accidently) saved back over the original stack. When you save, you will be asked to supply a new name because it's a new stack you're saving.

After you choose Add in..., a dialog box will ask you to choose a stack (just like Open...). Usually, the stack you're looking for is on the list, so you click its name and then click the Open button. However, if the desired stack does not appear, it may be on another disk or in another sub-directory (see *Working with disks* in the *Appendices* if you need help).

Whenever you add in another stack, there is a chance that you will exceed the memory limit. The resulting stack must fit within 32K of memory and have 250 pages or less. If not, a message will inform you that both stacks can't fit in memory. You could then link the stacks together instead of combining them.

If a message does appear, you have these options:

- ✓ If you were trying to merge two stacks together, instead, link them together. See *Linking stacks* under *Managing your stacks.*
- ✓ If you were trying to add in material or motivational pages from another stack, you can't do it as things stand now. It may still be possible, but you will need to *open* the stack you tried to add in, remove all pages except those you wanted to add in, and save it on a disk as a temporary stack. That temporary stack might be small enough to add in, and you could delete the temporary stack afterward. If you are trying to add a small amount of material, you could go between stacks and use Copy and Paste.

■ **Save**

Choose Save to save the current stack. If the stack already has a name, it will be saved right away. If the stack is new, you will be asked for a name (as if you had chosen Save as..., see below).

Important

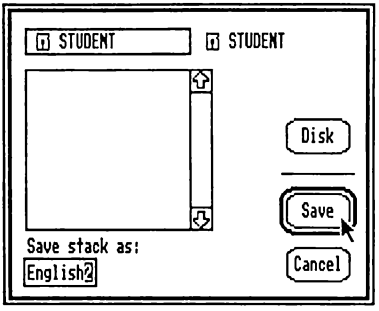
It is suggested that you save your work at least every half hour. If you leave your disk in the drive, choosing Save will save your latest changes fast and you can return to work almost immediately. Make it a habit—and prevent brief power-outs from ruining your day.

The Save feature can be very helpful in preparing Student disks for use. If you needed, for instance, to put a new stack of yours on 30 Student disks, you could choose Save as... (below) to save the stack on the first disk. Then, since each disk probably has the same name ("/STUDENT"), you could insert one disk after another and choose Save. It's fast and easy, and you may find it easier than using your favorite file-copying utility.

However, if you are preparing a number of Student disks with a new series of stacks, using Save will take up time. *For each stack,* you would have to insert each disk and choose Save; it would no longer be fast or convenient. Instead, in this case, save each new stack in the series on the first Student disk and then, using your favorite utility, copy the entire disk to each other Student disk.

■ **Save as...**

Choose Save as... to save your stack under a new name. A dialog box will ask you for a name and, usually, you'll type it in and click the Save button. However, you can also save the stack on another disk or in another sub-directory (see *Working with disks* in the *Appendices* if you need help).



❖ *Save as... has three uses:* you can save a new stack (which has no name yet), or you can save an existing stack under a new name, or you can save an existing stack on another disk or in another subdirectory.

After you supply a name and click the Save button, one of several messages may appear: a file on the disk may already have that name, the disk may be full, or the disk may be write-protected. If you are not familiar with such situations, you can look up the message in the *Appendices,* if one appears.

Once you save the stack, the Save feature will save the latest version of your stack immediately without asking for a name.

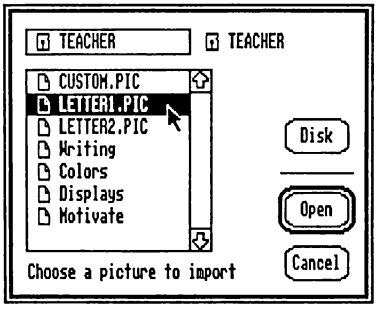
■ **Import...**

Choose Import... to bring work from other Apple II programs into your stack. If you like to paint, you can do so in one of the popular painting programs and import your artwork into your stack.

You can import artwork from MousePaint™, Print Shop™, Newsroom™, DazzleDraw™, ComputerEyes™, and ThunderScan™, as well as any other program which uses hi-res or double-hi-res pictures files.

❖ *Advanced users:* You can now import hi-res (280 pixels wide) and double-hi-res (560 pixels wide) pictures. If your painting or drawing program can save pictures into hi-res or double-hi-res files, you can then import those pictures into your stacks. Also note: double-hi-res files are sometimes called super-hi-res files.

After you choose Import..., a dialog box will ask you to choose a picture. Usually, the picture you're looking for is on the list, so you click its name and then click the Open button. However, if the desired picture does not appear, it may be on another disk or in another sub-directory (see *Working with disks* in the *Appendices* if you need help).

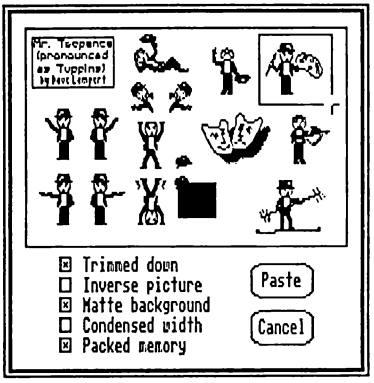


❖ *To import pictures from Print Shop and Newsroom,* you need to convert them to ProDOS first. Furthermore, Newsroom pictures must be saved as photo files before being converted to ProDOS. Tutor-Tech works under ProDOS and, therefore, only recognizes ProDOS formatted files. You can convert these files with the ProDOS file utility program that came with your Apple II.

❖ *Swapping disks:* Choosing Import... may require you to re-insert the Teacher disk, if you have removed it from the disk drive. This happens for the simple reason that we could not fit all of the Teacher's tools and features in memory. Import... is one of the few features which loads from the disk only when you use it. It's how we squeeze more features into a limited amount of memory. If you have extended RAM, you can avoid swapping disks completely (see *Appendices: The use of extra RAM*).

Once you've chosen a picture, it will be miniaturized as necessary. Pictures take up a lot of memory; select only what you need. Drag a selection rectangle around the part of the picture you want (1). When you click the Paste button, the part of the picture you've selected will appear on the current page of the stack, and it will be selected in case you want to move it around (2).

(1)



(2)

Figure 32
Importing artwork into your stacks

In the import dialog box above, you can see the paste options. Beside each option is a **check box**. Options are turned on and off by clicking their check boxes; the option is on if the box is checked. You can use any combination of the paste options:

- ✓ **Trimmed down** makes selecting a portion of the overall picture easier. This option is on at first for convenience. When on, the selection rectangle you drag will *snap* on to any object inside its area. Extra white space is trimmed off.
- ✓ **Inverse picture** reverses the black and white in a picture (like a film negative). This option is off at first, because you most likely want to paste a picture as it appears. If you want to invert the picture, click this option and then click Paste.
- ✓ **Matte background** creates a matte (white area) behind a picture when it is pasted. This option is on at first, and it is best to keep it on. If you turn it off, the pasted artwork will assume the background of whatever is behind it on the page, which may make it hard to see.

✓ **Condensed width** reduces by one half the horizontal width of the pasted artwork. When importing double-hi-res pictures, this option is initially on to preserve the picture's proportions.

✓ **Packed memory**, if on, will reduce how much memory the picture occupies in the stack. Keep this option on to use memory economically.

HELLO

■ **Speech...**

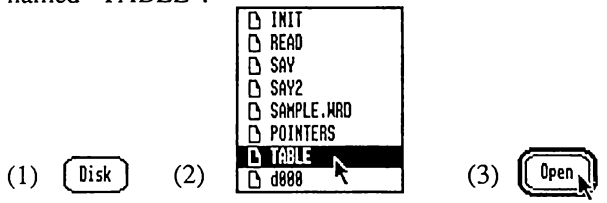
Speech... is *only* for users of Echo™ and Cricket™ speech synthesizers. You can now import high-quality, digitized speech into stacks, so that stacks not only speak but speak with clarity.

Echo and Cricket both come with a disk, and on that disk are dictionaries of digitized words. The dictionaries have, for each word, the digitized sound of a female voice. They are very clear and easy to understand, compared to the robot-like voice. The Speech... feature on the File menu allows you to import these high quality, digitized words into your stacks.

HELLO

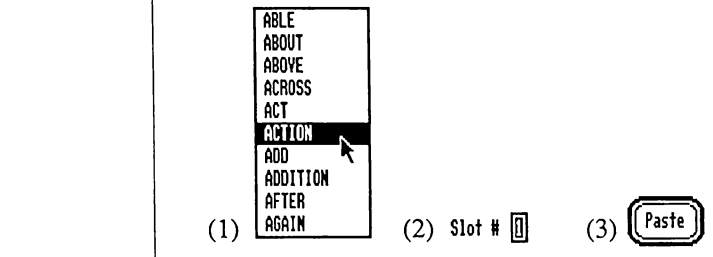
To begin, find the "WORDS" disk that came with your Echo or Cricket. Make a backup copy; you may be importing words often.

Choose Speech... and a dialog box will ask you to locate the "TABLE" file. The "TABLE" file has the list of available words in the dictionary. So, change disks if necessary and open the file named "TABLE":



❖ *Swapping disks:* Choosing Speech... may require you to re-insert the Teacher disk, if you have removed it from the disk drive. This happens for the same reason as the Import... feature (see). If you have extended RAM, you can avoid swapping disks completely (see *Appendices: The use of extra RAM*).

Then, another dialog box will appear and ask you to choose a word. Choose a word and check the slot number before you click Paste:



The word will appear on the screen in a word balloon. You've seen word balloons before in the comics sections of newspapers. When you preview the stack, or use it with the Student disk, the word balloons will not appear. Instead, the words will be spoken.

- *If you are using Echo on an Apple IIe:* You can install the Echo card in any slot 1 through 7. You may even have the Echo card in slot 3 if an Extended 80-Column Card is in auxiliary slot 3. When the dialog box asks for a slot number, type a digit 1 to 7.
- *If you are using Cricket on an Apple IIc:* Make sure it's connected to the phone/modem port. When the dialog box asks for a slot number, type "C" for Cricket (or lowercase "c").

The position of the word balloon on the page is not important. It is only shown as a reminder that this page speaks. However, the speech will be spoken in the order they were imported (back to front). Otherwise, word balloons are just like other items. You can Copy them, Paste them, Duplicate them, remove them, etc.

If you have any questions, refer to your Echo or Cricket *User's Guide*, or contact Street Electronics at:

Street Electronics Corporation
Post Office Box 50220
1470 East Valley Road
Santa Barbara, CA 93150
Phone (805) 565-1612

■ Quit

Choose Quit to leave the Teacher program. If you forget to save changes to your stack, a dialog box will remind you.

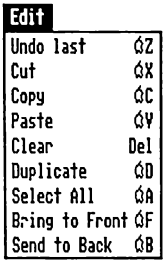
- ❖ *If you like to press Control-Reset or Control-Ó-Reset:* try to break the habit and choose Quit instead. Control-Reset is recognized as a substitute for Quit; however, no dialog box will ever appear to remind you to save your work. Furthermore, this key combination is remarkably close to Control-Ó-Reset, which reboots the computer instantly without reminders or consideration for user preferences.

After you choose Quit, ProDOS will ask you what program you want to use next. If you have set up preferences for an exiting prefix and exiting system (see Preferences... on the Special menu), that exiting system in the exiting prefix will be run automatically when you choose Quit.

Otherwise, you can turn off the Apple II, or you can insert another disk and reboot the computer by holding down the Control and Ó keys and pressing Reset.

- ❖ *Advanced users:* If you are familiar with prefixes and pathnames, you can tell ProDOS directly which Tutor-Tech program you want to use next. Tutor-Tech's disks are named "/TEACHER", "/STUDENT", and "/GRADER" (one of these would be your next prefix), and Tutor-Tech's programs are named "TEACHER.SYSTEM", "STUDENT.SYSTEM", and "GRADER.SYSTEM" (one of these would be the pathname).

2 The Edit menu



The Edit menu has features for editing your work: features for 'undoing' mistakes, cutting and pasting items, duplicating items, and moving items in front of and behind other items, and more.

First, you need to be familiar with the **clipboard**. The clipboard will help you cut or copy selected items from one place in a stack and paste them elsewhere. In other words, you can easily move things around and make extra copies of things.

For instance, to move a drawing from page 1 to page 2, you would select it first and choose **Cut**. After moving to page 2, you would choose **Paste**.

So, items that are cut, copied, and pasted go through the clipboard. The clipboard can hold any number of items, and it will hold them until you cut or copy other items. Plus, items in the clipboard can be pasted many times.

Read on for a detailed description of the Cut, Copy, and Paste commands, as well as the other features on the Edit menu.

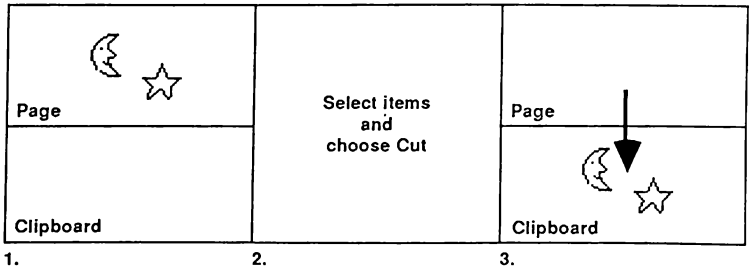
■ Undo last

Choose Undo last to remove the last item—text, graphics, or a picture—on the current page. If you repeatedly choose Undo last, items are removed one by one until none remain on the page.

❖ *Advice:* You should choose Undo last immediately after making a mistake. Undo only removes the last item on the page.

■ Cut

Choose Cut to remove the selected items from the page and put them in the clipboard.

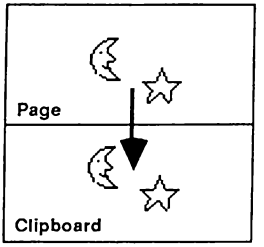


The selected items will disappear from the page, but you can then

Paste them anywhere in the stack, or even in other stacks. For example, you might move to another page or Open... another stack and Paste.

- **Copy**

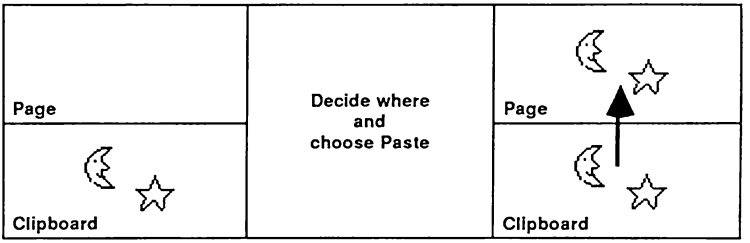
Choose Copy to put duplicates of the selected items in the clipboard. It's like cutting (above), except that the selected items remain on the page. After copying items, you can Paste their duplicates anywhere.



3.

- **Paste**

Choose Paste to add the clipboard's items to the current page. These are the items you previously cut or copied. The items will appear in the center of the page and they will be selected.



1. 2. 3.

Pasted items are selected for your convenience, since you may want to drag the items to their proper position on the page.

- **Clear**

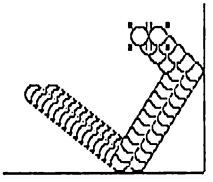
Choose Clear to remove the selected items from the page. You get the same result by pressing Delete.

Where do removed items go? Software, for you scientists, is not subject to the conservation of matter. Items are both created and removed by you... so take care with features like Clear.

■ **Duplicate**

Choose Duplicate to produce facsimiles of the selected item or items. The facsimiles will be positioned in front of the original items, shifted a bit down and to the right. If you duplicate again, the facsimiles are doubled, and so forth.

Interestingly enough, if you move a set of facsimiles and continue duplicating, the successive facsimiles will follow your lead. Instead of shifting a little down and to the right, they will continue in the direction you moved the first set of facsimiles. When they come to the side of the page, they *bounce*.



■ **Select All**

Choose Select All to select all of the items on the current page. Then, you can move them all together, or delete them by pressing Delete, or change their appearances with the Pattern, Color, and Line menus.

❖ *Advanced users:* Invisible items, like rectangles which are filled with white and have 'no line' borders, can get 'lost' on the page. And clicking everywhere with the selection tool is out of the question! So, choose Select All and, if they are there somewhere, their selection handles will appear. Then, you can delete them or, perhaps, restore their visibility by using the Pattern, Color, and Line menus.

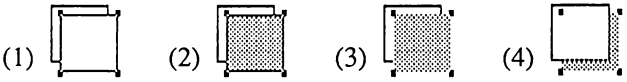
■ **Bring to Front**

Choose Bring to Front to put the selected item or items on top of all other items on the page. Sometimes, items can overlap each other, and Bring to Front can help you *unearth* them.

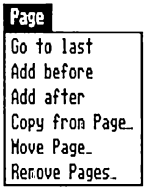
■ **Send to Back**

Choose Send to Back to put the selected item or items behind all other items on the page.

Send to Back can be very useful in creating **drop shadows**. For instance, you can make a box 'hover' over the page: first you select the box and choose Duplicate (1), then you turn the facsimile into a shadow by choosing gray on the Pattern menu (2) and 'no line' on the Line menu (3), and finally you choose Send to Back (4). Surprisingly, you can use this method to create a great looking drop shadow for any shape or number of shapes.



3 The Page menu



The Page menu has features for adding, copying, moving, removing pages, and more. Also, the Go to last feature is especially helpful when you are developing a stack.

❖ *Hint:* When it comes to moving from page to page, use the page arrows and the page box (both are described in *The Teacher's controls*).

■ Go to last

Choose Go to last to see the last page in the stack; the last page becomes the current page. This feature comes in handy because you often need to add pages at the end of a stack, which involves going to the last page and then adding a new page after it. By choosing this feature, you won't have to search for the last page by typing guesses into the page box.

■ Add before

Choose Add before to add a new blank page before the current page and make it the current page. All of the pages and all of the button destinations will be renumbered as necessary.

Make sure you take a look at the *important* note and illustration in the discussion of Add after (see below).

■ Add after

Choose Add after to add a new blank page after the current page and make it the current page. All of the pages and all of the button destinations will be renumbered as necessary.

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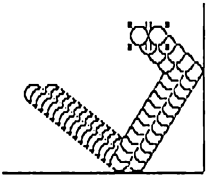

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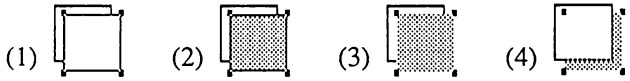
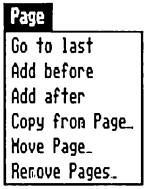


3 The Page menu



The Page menu has features for adding, copying, moving, removing pages, and more. Also, the Go to last feature is especially helpful when you are developing a stack.

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Choose Go to last to see the last page in the stack; the last page becomes the current page. This feature comes in handy because you often need to add pages at the end of a stack, which involves going to the last page and then adding a new page after it. By choosing this feature, you won't have to search for the last page by typing guesses into the page box.

■ Add before

Choose Add before to add a new blank page before the current page and make it the current page. All of the pages and all of the button destinations will be renumbered as necessary.

Make sure you take a look at the *important* note and illustration in the discussion of Add after (see below).

■ Add after

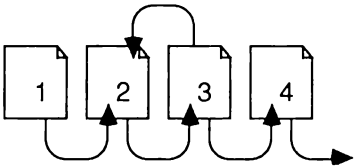
Choose Add after to add a new blank page after the current page and make it the current page. All of the pages and all of the button destinations will be renumbered as necessary.

❖ *Short cut:* If you get tired of choosing this menu feature over and over, to constantly add pages to a developing stack, you should know about the right page arrow. Normally, it moves you forward to the next page. Also, if you are on the last page of the stack, it can add a new page after. A dialog box will ask you to confirm this and pressing Return will finish the action.

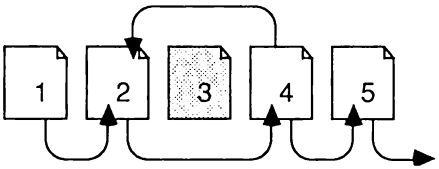
Important

Adding new pages normally occurs at the end of a stack (after the last page). However, if you need to add material to the middle of a stack, remember one thing: adding new pages will renumber all pages. So, after you add a new page in the middle of a stack, all of the button destinations will *jump over* the new page at first. You will need to change the button destinations on neighboring pages to include the new page in the structure of the stack.

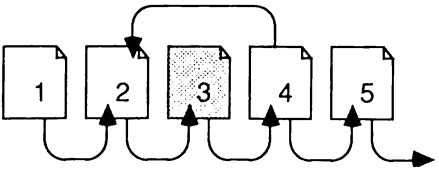
In this example, more material was needed between pages 2 and 3.



After inserting the new page, the flow of the stack has not really changed.



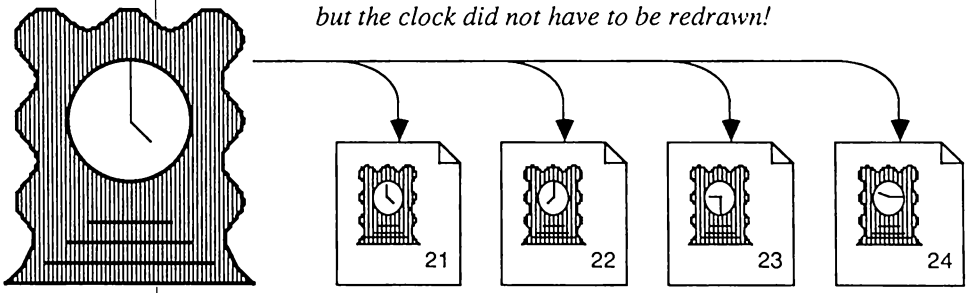
When you reroute the buttons from page 2 to page 3 and from page 3 to page 4, the change is complete.



■ **Copy from Page...**

Choose Copy from Page... to add the contents of another page to the current page. The copied words and pictures will be added on top of the contents of the current page; they will also be selected automatically so you can move them into position. The page which was copied will remain unchanged.

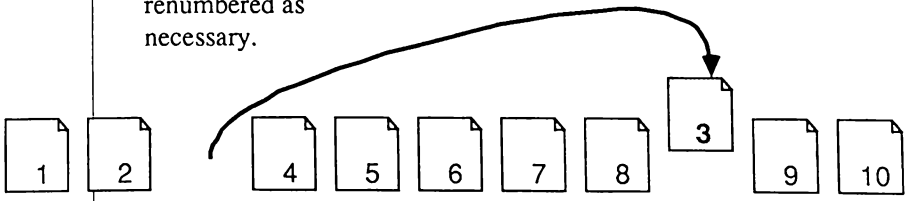
This feature can be a time saver. If you do some intricate drawing or writing on one page and want to duplicate it on other pages, this feature is just what you need! Take this ornate clock for instance. It was used in a stack which teaches students how to tell time. The clock was drawn once and copied on to several pages. On each page, the hands were changed on the face of the clock... *but the clock did not have to be redrawn!*



■ **Move Page...**

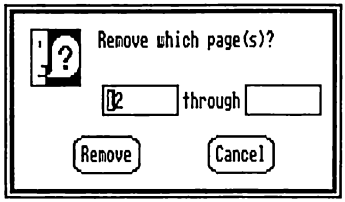
Choose Move Page... to move a page within a stack. A dialog box will ask you for the page's new page number (which will determine its new position in the stack). However, the new page number cannot be greater than the number of pages in the stack, i.e., in a stack of 10 pages, you can't move a page out to 59.

When a page is moved, a slot will open up where its going and its old slot will close up behind it. All of the pages and all of the button destinations will be renumbered as necessary.

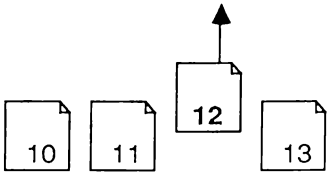


■ Remove Pages

Choose Remove Pages to remove one or more pages in the stack. A dialog box will display the number of the current page and ask for confirmation (1) before the page is removed (2). This confirmation allows you to cancel the action, because the Undo feature on the Edit menu can not bring back a removed page.

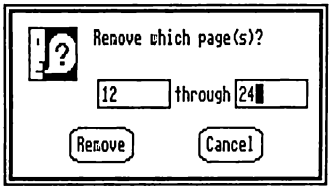


(1)



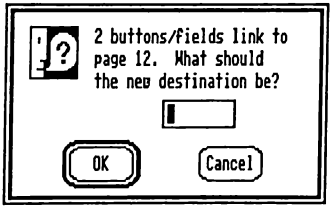
(2)

To remove a range of pages, type the lower page number first and press Return. Then type the higher page number and click Remove.

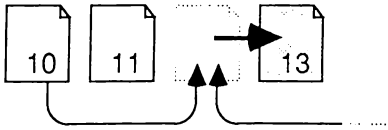


Editing page numbers is easy

If buttons and fields on other pages (or in the clipboard) are linked to a removed page, their destinations must be *redirected.* In this example, buttons on page 10 and another page beyond were linked to page 12. We'll redirect those buttons to page 13 instead. (You can also redirect buttons and fields to a non-existing page—just remember to create it later.)

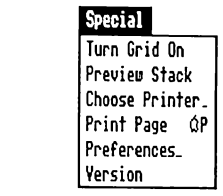


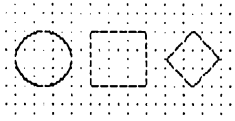
(1)



(2)

When a page is removed, button and field destinations are redirected first, and then all of the pages and destinations are renumbered automatically.





The Special menu has features for using the drawing grid, previewing stacks, printing pages, changing printers, setting preferences, and more.

■ Turn Grid On/Off

Turn Grid On/Off controls the drawing grid. When you turn the grid on, a series of dotted lines will appear at equal intervals —horizontally and vertically—across the entire current page. Whatever you do on the page, the cursor will *stick* to points on the grid. Constructing proportional shapes becomes easy.

When the grid is off, you have the freedom to move anywhere on the page (down to the pixel). Sometimes you will want this precision; so, turn the grid on and off as necessary.

Hints on using the grid:

- ✓ You can draw perfect squares with the rectangle and filled rectangle tools,
- ✓ You can draw perfect circles with the oval and filled oval tools,
- ✓ You can easily connect lines and shapes exactly on their corners and edges (i.e. to assemble various things);
- ✓ You can draw lines at certain angles easily (merely count the units of length on each axis),
- ✓ You can type a table of information in equally spaced rows or columns (i.e. by clicking at equally spaced positions on the page and typing items of information).

You will surely think up more uses than we have.

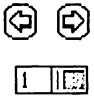
The only situation where the cursor does *not* stick to the grid is when you press Return (or the up or down arrow keys) between two lines of text. The blinking text cursor moves a standard distance depending on the size of your letters, and this may not match the interval of the grid.

Preview Stack

The Preview Stack feature helps you determine if stacks work properly. After choosing this feature, you can respond directly to buttons and fields and see if they link to the proper destinations. Otherwise, you would need to save the stack, boot the Student disk, and use the stack as a student would.

As you move through the stack, you will also notice that plus and minus buttons don't show their plus and minus signs.

- *Swapping disks:* Choosing Preview Stack may ask you to re-insert the Teacher disk. This happens because we could not fit all of the Teacher's tools and features in memory. Preview Stack is one of the few features which loads from the disk only when you use it. It's how we squeeze more features into a limited amount of memory. If you have extended RAM, you can avoid swapping disks completely (see *Appendices: The use of extra RAM*).



Before you begin previewing, you may wish to move to a specific page (by clicking the page arrows or typing directly into the page box). For instance, you may want to go to page 1 to preview the stack from the beginning.

While previewing, if you click a button or a field which is linked to another stack, the Teacher program will open the next stack automatically and continue previewing. In this way, you can preview all of the linked stacks in a series, stopping only as necessary to make changes.

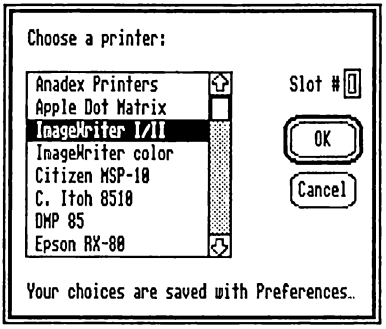
- *Saving changes:* Before opening another stack, the Teacher program will check if changes were made to the current stack. If so, a dialog box will appear with the option to save changes.

You can stop previewing at any time by clicking the stop hand, which has replaced the toolbox. The tools and the menus disappear while previewing because you don't need them.

Previewing gives you the advantage of stopping on any page, changing something, and then previewing on. You can polish off stacks fast this way!

While you are previewing, a message might inform you that an attempt was made to link to a non-existent page or stack. If this happens, you can correct the button or field, or add the missing page or stack.

■ **Choose Printer...**

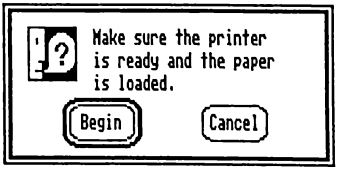


Choose the Choose Printer... feature to identify what kind of printer you have and where it is attached to your Apple II. Both serial and parallel interface cards are recognized. Find the name of your printer on the list and click it (use the up and down arrows to see more printers). To finish, type the single digit (1 to 7) representing your printer's slot (if not already shown) and click OK. You can also click Cancel to leave the settings unchanged.

❖ *Hint:* If your printer does not appear on the list, choose a similar printer and try printing again. If you are not sure what slot your printer interface card is in, you can open your Apple II's cover and check (power *off* first!). If you can't resolve a printing problem, contact Techware Product Support... we're here to help you. See *Service and Support* in the *Appendices*.

Once you choose a printer, supply a slot number, and click OK, those settings will be in effect until you turn off the computer. To save those settings on disk so that they are in effect every time you start up the Apple II with the Teacher disk, use the Preferences... feature (discussed after Print Page).

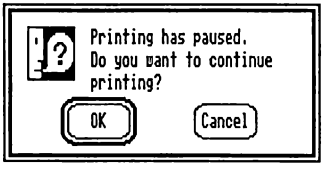
■ **Print Page**



Choose Print Page to print the current page. A dialog box will ask if the printer is on and ready. If so, click Begin. If not, take your time setting it up. If you decide not to print out, click Cancel.

❖ *Hint:* If your printouts don't look right, or if nothing prints out, check your cables and your printer settings (with Choose Printer...). If you can't resolve a printing problem, contact Techware Product Support... we're here to help you. See *Service and Support* in the *Appendices*.

You can stop a printout by pressing any key or clicking the hand control's button. A dialog box will inform you that printing has paused. Click OK to continue printing, or click Cancel to cancel printing completely.



■ **Preferences...**

Choose Preferences... to set up ProDOS oriented preferences, which make working with files easier. However, this is an advanced feature and should only be used when you understand these preferences (this is all very similar to Preferences... in the Grader program):

✓ The **Startup Prefix** is the disk or directory (folder) where your stacks and other files reside. If not specified, the Startup Prefix is assumed to be the prefix name of the Teacher disk or, on a hard disk, the prefix name of the directory (folder) where the Teacher program resides.

✓ The **Exiting Prefix** is the disk or directory (folder) to be used whenever you leave the Teacher program (either by Quit or Control-Reset).

✓ The **Exiting System** is the program to be run whenever you leave the Teacher program (either by Quit or Control-Reset). If not specified, you will be asked for an exiting system.

✓ The **Startup Stack** is the stack to be opened automatically whenever you run the Teacher program. You might call it "Catalog"; see *The Samples disk* for ideas.

✓ The **Virtual Prefix** is the name of the RAM disk created in extended memory. If you have extended memory, refer to *The use of extra RAM* in the *Appendices*.

For example, you could set up these preferences:

Startup Prefix = /STACKS

If you like to develop stacks on a separate disk called "/STACKS", rather than on the Teacher disk, you could set the Startup Prefix this way.

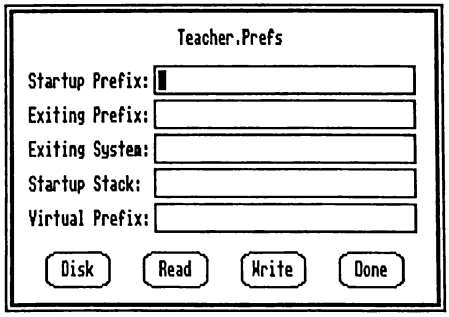
Exiting Prefix = /GRADER
Exiting System = GRADER.SYSTEM

To automatically run the Grader program after leaving the Teacher program, you set the Exiting Prefix to "/GRADER" (the ProDOS name of the Grader disk) and the Exiting System to "GRADER.SYSTEM" (the ProDOS name of the Grader program). Now, whenever you choose Quit or press Control-Reset, make sure the Grader disk is already in a disk drive because the Apple II will immediately look for and run the Grader program.

Startup Stack = Literacy

If you are developing a stack called "Literacy" over many sessions, you can side-step choosing the Open... feature each time you begin work. The stack called "Literacy" on the disk called "/STACKS" (the Startup Prefix set earlier) will be opened automatically upon bootup. However, you are still responsible for saving your work!

To see what the preferences are on your Teacher disk, choose Preferences... and, making sure the Teacher disk is in a disk drive, click the Read button. The preferences, if any, will appear in the dialog box. You can type right over the old preferences; the hand control and the four arrow keys will help you move the cursor around. Click Write to save the preferences back to the disk.



While the preferences dialog box is still on the screen, you can change preferences on other disks. To do so, click the Disk button, choose a preferences file on a different disk, and then repeat the process described above: click Read, make your changes, and click Write to save the new preferences back to the disk.

❖ *Hint:* One popular preference is to define a Startup Stack on a Student disk. By doing so, you can create a self booting masterpiece! Such a Student disk could be given to any student without special instructions, because it would automatically start up a stack with all the necessary instructions built into it. If possible, name your startup stack "Catalog". There is more on this topic in the *Sample stacks* section of *The Samples disk.*

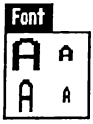
Click Done when you're all finished setting preferences.

❖ *Preferences... can also save your printer preferences.* When you save preferences, you also save your printer choice and slot location as decided with the Choose Printer... feature. Therefore, choose Choose Printer... and pick your printer first, and then choose Preferences... and click the Write button. Easy!

■ Version

Choose Version to display the version number and unique serial number assigned to this software. A version number is to software what an edition number is to books. Together, the version and serial numbers come in handy if you contact Techware Product Support, because they completely describe the software and would help us diagnose problems quickly (see *Service and Support* in the *Appendices*).

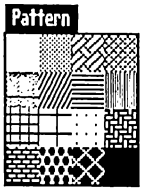
5 The Font menu



The Font menu gives you 4 text sizes, so you can type headlines and fine print. The text size you choose directly affects the operation of the text tool. When you boot up the Teacher disk, the initial text size will be the size of the "A" in the text tool.

❖ *Hint:* Remember that this menu affects the text tool; it is not a tool itself. Therefore, you cannot choose a text size on this menu and begin typing immediately. You need to click the text tool (or make sure it's highlighted) and then click on the page where you want to begin typing.

6 The Pattern menu



The Pattern menu gives you 16 black&white patterns to keep drawings interesting. The patterns affect the regions of filled shapes (rectangles and ovals).

These are the formal names of the patterns. They are especially helpful when you share your stack ideas with other Tutor-Tech owners, i.e. "First, I filled the whole screen with gray..." and "... then I used tweed #1 and parquet #2 to complete the picture!"

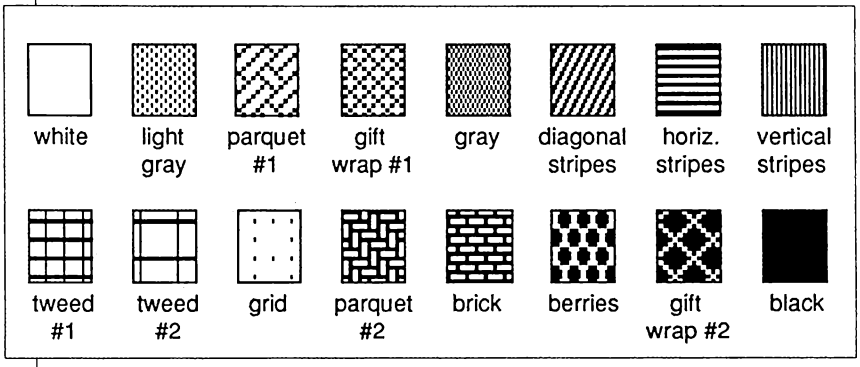
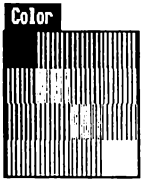


Figure 33
The black&white patterns and their names

You can change the pattern while drawing items (filled rectangles and ovals). Between two items, you can stop and choose a new pattern on the Pattern menu, and then continue drawing. The new pattern will be used until another pattern is chosen.

You can change the pattern of selected items. Using the selection tool, click a filled shape or drag a selection box around several filled shapes, and then choose their new pattern from the Pattern menu. They change instantly!

At any time, the graphic preferences box shows the pattern in use. If it shows a color, it's because you made a choice from the Color menu more recently than the Pattern menu.



The Color menu gives you 16 rich colors. The colors affect lines, the borders of nonfilled shapes (rectangles and ovals), and the regions of filled shapes.

These are the formal names of the colors. They are helpful if you keep notes on your stacks, i.e. which colors you like, which look best on natural objects, etc.

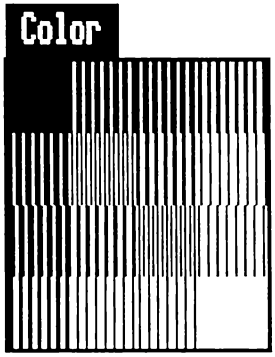


Figure 34
The colors and their names

- *If the colors look wrong:* the stack called "Colors" on the Teacher disk can help you to adjust your monitor. Open this stack and adjust your monitor's colors until the colors on the screen match their labels.
- *If you don't have a color screen,* you can still use colors. The colors used in a stack will be recorded on disk and, some day, when the stack is used on a color monitor, it will show up in full color. If you don't have a color monitor but still want to develop stacks in color, use the chart of color names in the figure above to choose the right colors. (If you like, you may photocopy this chart and keep it beside your Apple II.)

You can change the color while drawing items (i.e. lines, freehand, rectangles, and ovals). Between two items, you can stop and choose a new color on the Color menu, and then continue drawing. The new color will be used until another color is chosen.

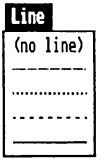
You can change the color of selected items. Using the selection tool, click an item or drag a selection box around several items, and

then choose their new color from the Color menu. They change instantly!

At any time, the graphic preferences box shows the color in use. If it shows a black&white pattern, it's because you made a choice from the Pattern menu more recently than the Color menu.

- *If you have an Apple IIGS,* the colors on the Color menu are not the superior colors of an Apple IIGS. They are the standard colors available on any Apple II. Therefore, your stacks can be used on any Apple II without the colors changing.
- *If you have an ImageWriter™ II*, you can print your stack's pages in color! With the three primary colors on a color ribbon, the software uses a process called **dithering** to produce all sixteen Tutor-Tech colors. Dithering means that colors are mixed until the desired color is reached. Try it!

8 The Line menu



The Line menu offers four types of lines and an invisible line. These line types affect the appearance of lines (obviously!), freehand sketching, and the borders of rectangles and ovals.

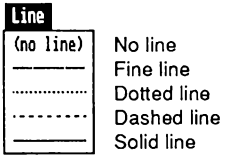


Figure 35
The lines types and their names

You can change the line type while drawing items (lines, freehand, rectangles, and ovals). Between two items, you can stop and choose a new line type on the Line menu, and then continue drawing. The new line type will be used until another is chosen.

You can change the line type of selected items. Using the selection tool, click an item or drag a selection box around several items, and then choose their new line type from the Line menu. They change instantly!

At any time, the graphic preferences box shows the line type in use.

Managing your stacks

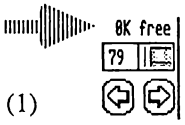
How big can stacks be?? This section will zero in on how big stacks can be and how many pages they can have. However, you will also learn how to *link* stacks, leaving your path clear to develop stacks of unlimited size.

1 The largest stack

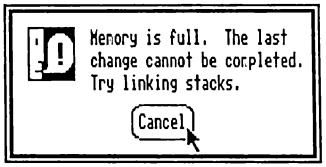
When you open a stack, it is stored inside the Apple II's memory while you work on it. While allowing the stack to operate at top speed, the stack's size itself does become limited by memory.

You always begin with 32K of work space (32,768 bytes), which, for your information, translates to about 32,000 typed characters, or about 4,000 rectangles, or about 100 feet of freehand sketching. In a developing stack, free memory will show a smaller and smaller amount of free memory. When it approaches zero, you should plan to link to another stack (1). If you continue developing the stack anyway, a message will eventually stop you because memory *is completely full* (2).

(1)



(2)



Linking stacks is the remedy—allowing you to start another stack where this one left off (see next page). Better still, student's won't know the difference!

- ❖ *Advice:* When free memory drops to 0K (zero-K) you should (a) finish with the page you're working on, (b) link to another stack, and (c) save the stack. Then, you can start a new stack where this one left off.

2 The highest page number

Stacks can have up to 250 pages. However, it only takes about 50 or 100 heavily illustrated pages to add up to 32K (the largest stack), so the highest page number is usually never approached.

However, if you like a lean stack (without many words or pictures) and you do come upon the highest page number, a message will inform you that it is time to link stacks. So link stacks, save this stack (i.e. "History"), and begin a new stack (maybe "History2").

Whenever you run out of free memory or available pages, you can link stacks together. *Where one stack ends, another can begin.* A button in the first stack will link to the name of the next stack:

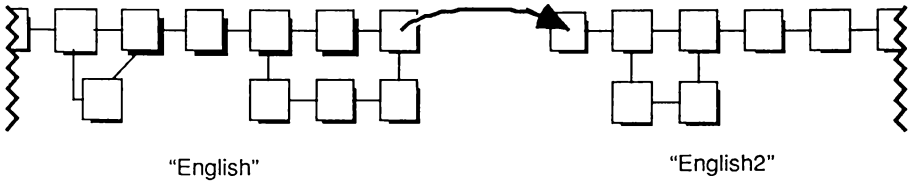


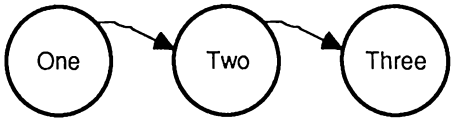
Figure 36
How linked stacks are connected

Usually, it's a button on the last page of the first stack that does it. And, as you can see, the next stack will begin on page 1.

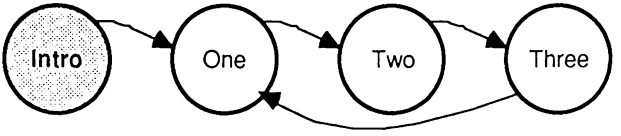
Now for the details. Normally, buttons link to page numbers, but you can also type in the name of any stack (up to eight characters).

❖ *Hint:* Try to link stacks together *before* you use up memory or 250 pages. That way, your stacks can breathe a little when you go back to edit them.

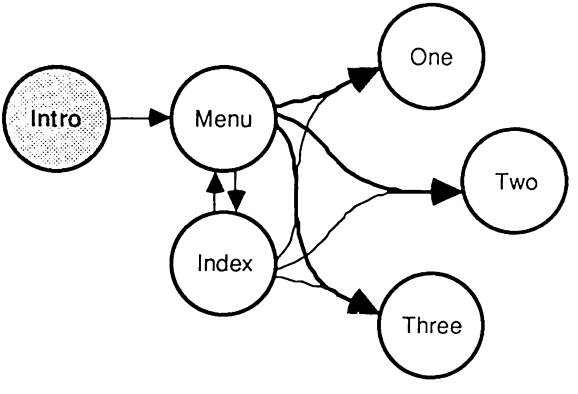
How many stacks can you link together? Any number. You can a link a few stacks together on one disk, link over to the first stack on the next disk, etc.



If you have a large project, you should map out stacks beforehand. Plan what each stack will accomplish.



Large systems can be created with stacks. No task is too large for Tutor-Tech.



The Samples disk

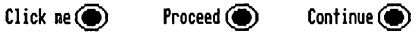
The Samples disk has a goldmine of sample stacks and clip-art. The stacks will give you neat ideas and the clip-art will enhance your stacks. And more ideas are on the Teacher disk.

1 Sample clip-art

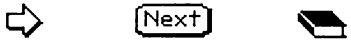
The clip-art on the Samples disk has two purposes: to make illustrating your stacks easy and, more importantly, to make creating "hypermedia" easy.

Hypermedia is information organized so that the user (i.e. student) can get at just what they want, without seeing what they don't want. And clip-art comes in handy here, because it can be used to *cover up buttons* and, thus, make choices intuitive. Students will be able to click directly on icons, rather than generic buttons.

So, familiar situations like:



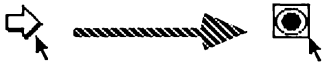
can now be more obvious and much more interesting:



■ How to use clip-art

Each picture on the Samples disk is a collection of icons. For example, ARROWS.PIC has classic and modern-looking arrows pointing in all directions. Bringing one of these icons into your stacks is easy with the Import... feature on the File menu (already described in *The Teacher's Reference*).
Assuming you have already started up the Teacher disk:

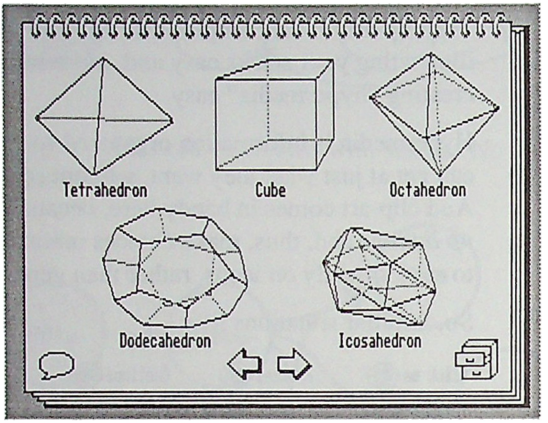
1) choose Import... on the File menu;
2) insert the Samples disk and click the Disk button;
3) choose a picture on the list and click the Open button;
4) select an icon (draw a rectangle around it) and click Paste;
5) drag the icon, positioning it on top of a button on the page.



■ An example use of clip-art

Now your imagination can run free. Whenever your stacks offer choices (buttons) for getting help, browsing through information, or answering questions, etc., you can use one icon for each choice.

Consistent use of icons throughout a stack will make using that stack easy and natural. In the following example, you can see how quickly the "look and feel" can develop.

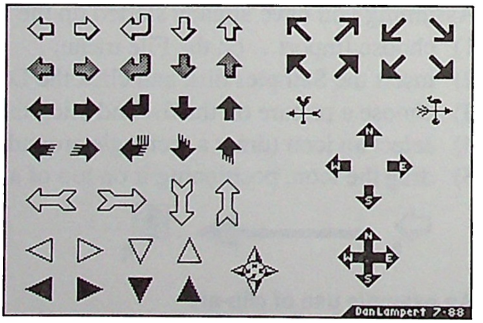


Pick icons for your stacks and create your own "look-and-feel".

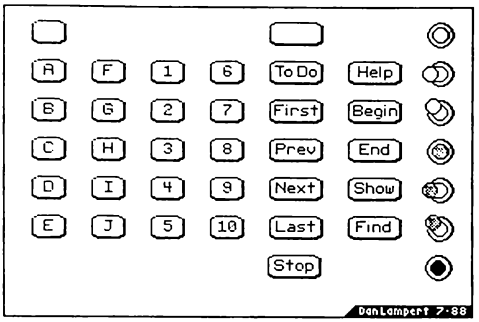
■ The clip-art library

The pictures on the Samples disk are shown next for your convenience; it's a quick reference to your new clip-art library.

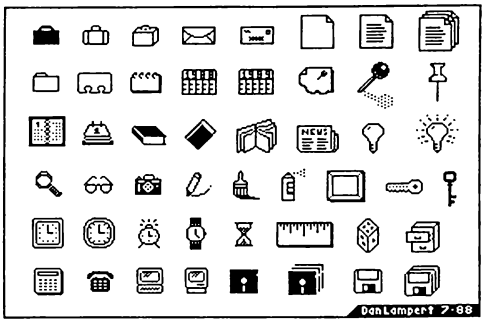
Most of the icons are just large enough to cover up one button. If you want to use smaller or larger icons, look up transparent buttons in *Buttons* in *The Teacher's tools*.



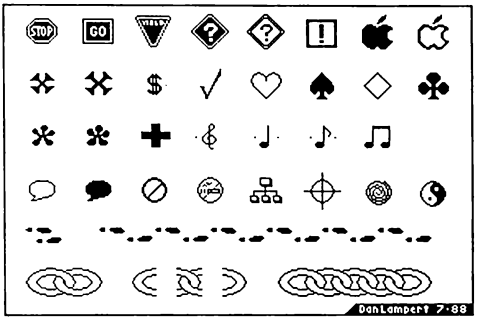
ARROWS.PIC



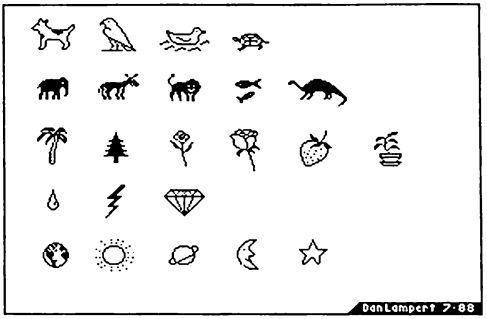
BUTTONS.PIC



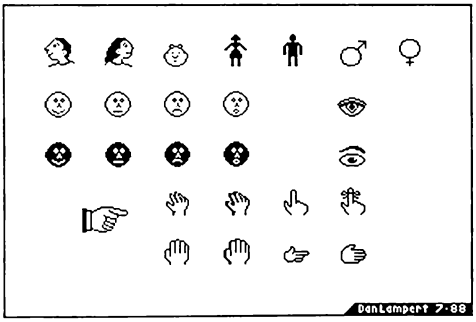
DESK.ITEMS.PIC



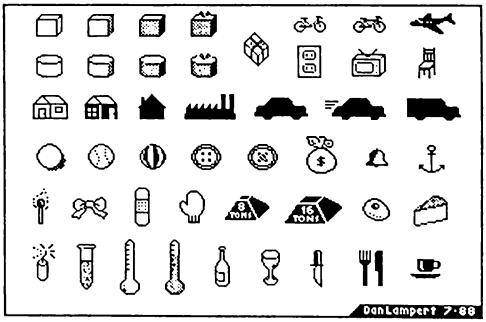
ICONS.PIC



NATURE.PIC



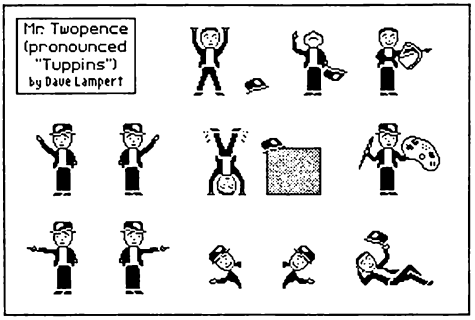
PEOPLE.PIC



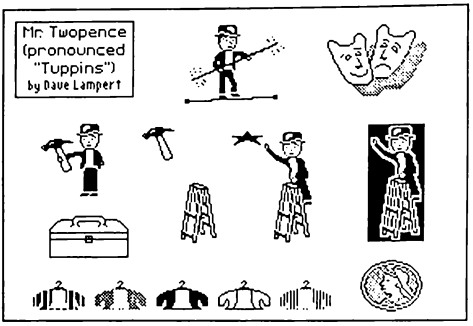
THINGS.PIC

There's more clip-art! The Samples disk also has two pictures starring Mr. Twopence (pronounced "Tuppins").

Mr. Twopence is a little character who can make your stacks more interesting. His different poses can emphasize points in your stacks, congratulate users on their progress, etc.



TWOPENCE1.PIC



TWOPENCE2.PIC

2 Sample stacks

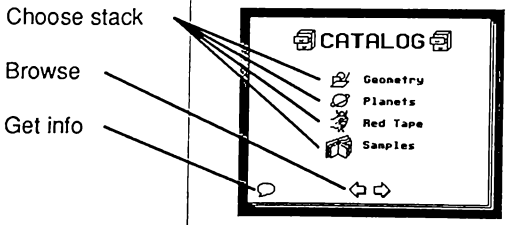
The stacks on the Samples disk will give you great ideas of what you can create. These stacks use some of the above clip-art. Altogether, the stacks on the Samples disk make up a "hypermedia system", where a "Catalog" stack branches to other stacks, and those other stacks have options to return to the "Catalog".

■ The Catalog

The "Catalog" is your guide. To use it:

1) start up the Student disk;
2) put in the Samples disk and click the Disk button;
3) choose the stack called "Catalog" and click the Open button.

Navigating about the disk is as simple as clicking on the icons:



You can make your own "Catalog" and put it on all your Student disks. You can model it after the one shown on the last page.

❖ *Time saver:* You can tailor our "Catalog" to suit your purposes. Open "Catalog" with the Teacher program, put in the names and descriptions of *your* stacks, and edit the destinations of the buttons. (Note that the "Next" and "Begin" buttons use transparent buttons). Then choose Save as... (not Save!) and put the stack on *another* disk under the name "Catalog".

Important

"Catalog" is the official name for any stack which helps users navigate between stacks. Please use "Catalog" only for such stacks. (Incidentally, we picked the name "Catalog" because you type "Catalog" in the BASIC language to see what's on a disk.)

■ **The other stacks**

The other four stacks on the Samples disk are:
✓ "Geometry" (an example of a traditional lesson),
✓ "Planets" (an example of a visual database),
✓ "Red Tape" (an example hyper-adventure game), and
✓ "Samples" (a gallery of ideas).

Each of these stacks has an option to return to the "Catalog". Thus, the student has the ability to click their way through *and between* stacks. That's an advantage of hypermedia systems—users can bootup a disk and begin clicking buttons immediately. They need not possess any knowledge of the system's features.

3 Samples on the Teacher disk

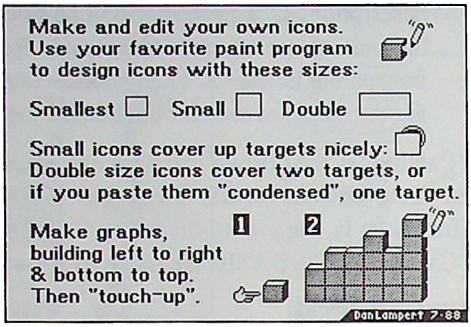
After we filled up the Samples disk, more neat ideas and samples spilled over on to the Teacher disk: there are tips for creating your own clip-art and a stack with great displays (backdrops).

■ **Making your own clip-art**

With a "paint" program, perhaps MousePaint™, you can:
✓ adapt the icons provided in the clip-art library,
✓ create your own icons and your own library,
✓ assemble icons into larger pictures.

When you design your own icons, you can make them any size. If they cover up a button, then use them that way. If they are other sizes, use them in combination with transparent buttons.

The picture called "CUSTOM.PIC" on the Teacher disk has tips for creating clip-art. You can model new icons after the "Smallest", "Small", and "Double" size boxes, so that they fit conveniently over buttons.



CUSTOM.PIC

If an icon is to cover up a button completely, it must be at least as large as the "smallest" size shown above. "Small" is the optimum size, being a little larger and easy to position over a button.

■ Great displays

Whenever you create a new page in a stack, you start with a plain white background. That's fine, but now you can do better.

The stack called "Displays" has twelve fabulous backgrounds, from notebooks to billboards. If you copy one of these displays to a new page before you begin creating it, you will greatly enhance the overall appearance of your stack.

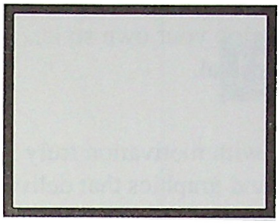
Using "Displays" in new stacks is easy. Here's one way:

1) Start up the Teacher disk;
2) Open... the stack "Displays";
3) Go to the last page (choose Go to last on the Special menu);
4) Add a page after this page (choose Add after on the Page menu), and create what will become the first page in your new stack;
5) Decide which display you want to use (refer to the pictures on the next page and find its page number);
6) Copy the page (choose Copy from page... on the Page menu);
7) The display appears! Then develop the page (text, graphics, buttons, etc.), add another new page, and continue with step 5 until the stack is done.

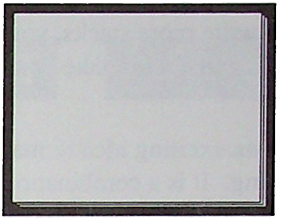
When the stack is done, delete pages 1 through 12 (the generic displays). These pages are not a permanent part of your stack; they were used as source material and now that purpose has been filled.

Here's what each display looks like (and their page numbers):

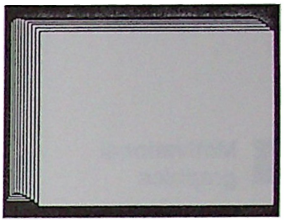
1



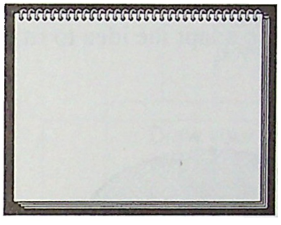
2



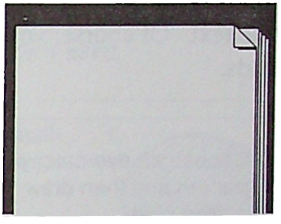
3



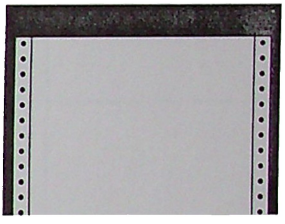
4



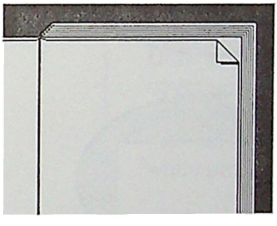
5



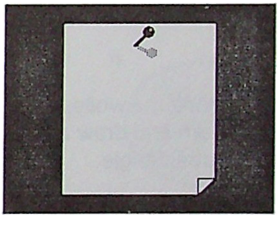
6



7



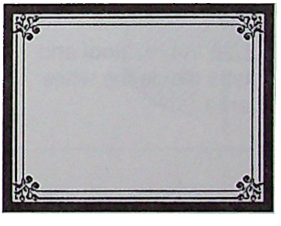
8



9

10

11



12

Important

The fancier displays, page 3 and 11 for instance, take up more memory. You can use them as much as you like, but be prepared to link stacks when you run out of memory (look into *Linking stacks* in *The Teacher's Reference*).

Ideas for stacks

Every package has short cuts or 'tricks'. In Tutor-Tech, they take the form of ideas... collected over the years. The ideas in this section will get you off to a good start and, hopefully, inspire you to develop your own short cuts for creating super stacks.

The following examples, and their like, guarantee effective stacks. As you write more stacks, you will develop your own style... something that will make your stacks special.

1 Motivational graphics

Here is an exciting idea to make pages with motivation truly rewarding. It is a combination of text and graphics that delivers a message and looks dazzling at the same time.

It is actually a simple display, composed of one oval, one rectangle, and some text. Of course, you'll want to adapt the idea to fit your own needs.

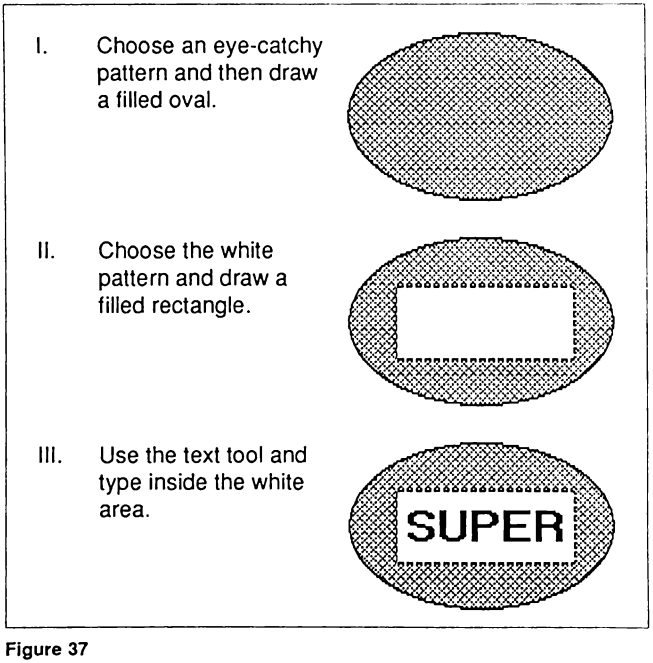

I. Choose an eye-catchy pattern and then draw a filled oval.
II. Choose the white pattern and draw a filled rectangle.
III. Use the text tool and type inside the white area.
SUPER

Figure 37
Piling up graphics and text for effects

Can you think of other uses for this, besides motivation?

2 Night and Day

Words usually appear black, because they appear *on* a white background. But you can change that. For variety, put words inside a rectangle filled with solid black. The letters will come out in white on the black background. Drawings (except filled shapes) will reverse their backgrounds, too.

NIGHT Night

3 The cover up

Sometimes, you may require only a portion of an oval (i.e. for a piece of pie). If it's too difficult to draw with lines or a freeform sketch, you can draw the entire oval normally and then *cover up the portion you don't need.*

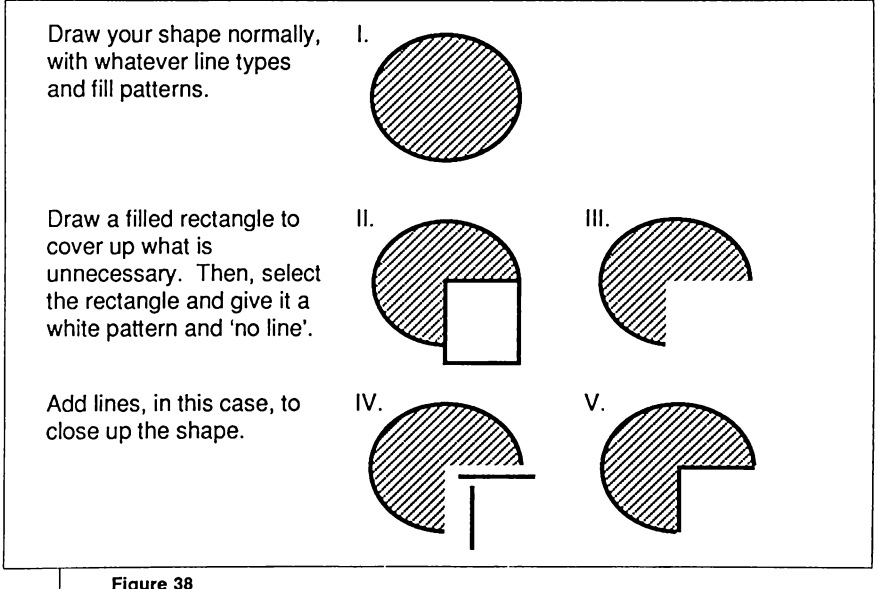

Draw your shape normally, with whatever line types and fill patterns.
I.
Draw a filled rectangle to cover up what is unnecessary. Then, select the rectangle and give it a white pattern and 'no line'.
II.
III.
Add lines, in this case, to close up the shape.
IV.
V.

Figure 38
Covering up graphics with other graphics

You can do the same for filled rectangles. In addition, if you draw filled ovals *and* rectangles on a page and then cover up portions of them, many interesting figures can be created.

4 Animation

This section has, so far, discussed interesting yet static displays. To go one step further for the clever and prolific, the following ideas introduce dynamic displays.

Tutor-Tech was not designed to animate objects, but it is possible and the results are fabulous! Animation, like a filmstrip, is composed of successive frames. The key is covering up old frames with white rectangles—filled with white and made borderless (use 'no line' type).

Draw the first figure (I), cover it up with a rectangle and draw the next figure (II) nearby, etc., until you arrive at the last figure (III).

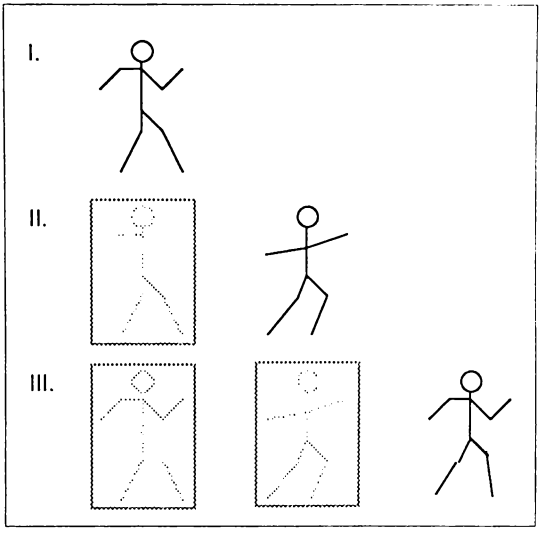


Figure 39
Animation

It's up to you if the last figure is covered up or not. Will the running figure rest on the page? Or will it disappear into the air? Experiment!

The Student's icons

The five icons in the Student program are for choosing and using stacks. You click an icon to use it, much like using a tool in the Teacher program (except that icons do not stay highlighted). Each icon is described individually in this section.

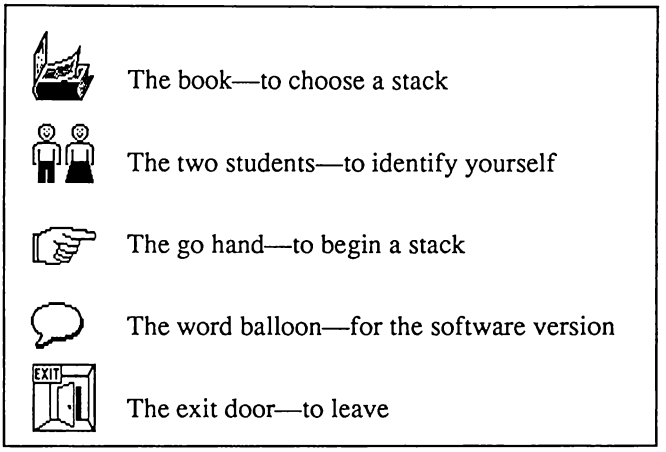

EXIT
The book—to choose a stack
The two students—to identify yourself
The go hand—to begin a stack
The word balloon—for the software version
The exit door—to leave

Figure 40
The Student's icons

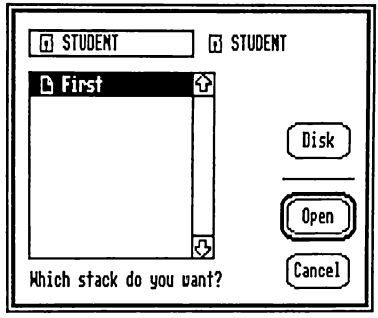
This section will show you how to use the Student program in terms of a hand control. However, the rules for using the keyboard are easy: you press the **space bar** or one of the **arrow keys** to move the pointer to the next icon, and you press the Return key to choose that icon.

- *Overriding the hand control in the Student program:* If you have a hand control attached to the computer but want to use the keyboard—to experience exactly what the student will experience—press a key (any key) while the Student disk is booting. The keyboard will be used for the rest of that session; reboot to use your hand control again.

1 Choose a stack (the book)

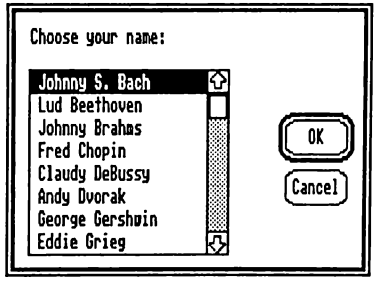
Click the book icon to choose a stack. You can only choose (and use) one stack at a time. This icon will be automatically chosen when you start up the Student program, and a dialog box will ask you to choose a stack.

Usually, the stack you're looking for is on the list and you click its name and the Open button. However, if the desired stack does not appear, it may be on another disk or in another sub-directory (see *Working with disks* in the *Appendices* if you need help).



2 Identify yourself (the two students)

Click the icon of the two students to identify yourself. You will choose your name off of the class roll or, if you have not set up a class roll, you will have the opportunity to type your whole name.



On a class roll, student names will appear just as they were typed with the Grader disk. Make sure that the students have enough information to recognize their own names. Students identify themselves so that scores can be properly recorded with their respective names.

If you are not keeping score, no list of names will appear. Instead, the student will be asked to type their whole name if variables are used in the stack. (Variables are described under the text tool in *The Teacher's tools*.)

3 Begin stack (the go hand)

Click the go hand to begin the chosen stack. At that point, the go hand will turn into a stop hand, which will be used later to stop the stack. The other four icons (the book, the two students, the word balloon, and the exit door) will disappear while the stack is being presented; they will reappear when you click the stop hand.

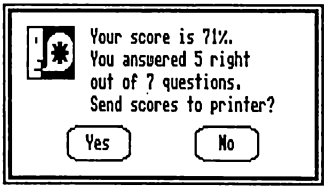
What happens next depends if a score file is being employed or not.

- **When a score file is used**

  The stack will begin on page 1 or, if the student has used the stack before, where the student left off last time. All scores will be recorded in the score file (beside the name picked by the student).

- **When no score file is used**

  The stack will begin on page 1 and wait for a response. The score will be kept in memory and displayed (even printed if you like) when the stack is finished.

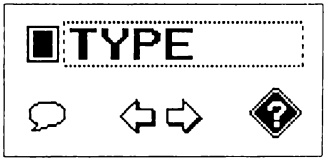


❖ *A rare instance:* If you click the go hand, but the stack does not begin, it is probably because you are keeping score and the student has already completed the stack. You went to the last page (where the student left off) and the stack came to an end.

Using a stack with a hand control

If students have hand controls, such as mice or joysticks, they should know:

- ✓ To respond to buttons, move the pointer with the hand control and click *directly* on the desired button,
- ✓ To respond to fields, type a response (use Delete to correct mistakes) and press the Return key,
- ✓ When a page has buttons and fields, click the field you wish to respond to before typing,
- ✓ To stop using the stack, click the icon of the stop hand.



Using a stack with the keyboard

If students have no hand controls and use their keyboards instead, they should know:

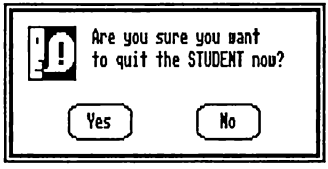
- ✓ To move the pointer between buttons, press the arrow keys or space bar, and then press the Return key to choose the button,
- ✓ To respond to fields, type a response (use Delete to correct mistakes) and press the Return key,
- ✓ When a page has buttons and fields, use the up and down arrow keys to move between buttons and fields, and use left and right arrows to move over text in fields,
- ✓ To stop using the stack, press the Escape key.

4. Software version (the word balloon)

Click the word balloon to display the version number and your unique serial number of the Student software. A version number is to software what an edition number is to books. Together, the version and serial numbers come in handy if you contact Techware Product Support, because they completely describe the software and would help us diagnose problems quickly (see *Service and Support* in the *Appendices*).

5 Leave (the exit door)

Click the exit door to leave the Student program. A dialog box will confirm that you want to leave the Student program.



- *If your students like to press Control-Reset or Control-Ö-Reset:* have them break the habit and click the exit door instead. Control-Reset is recognized as a substitute for clicking the exit door; however, no score will have the chance of being seen or saved. Furthermore, this key combination is remarkably close to Control-Ö-Reset, which reboots the computer instantly, losing the score and ignoring user preferences.

After you confirm you want to leave, ProDOS will ask you what program you want to use next. If you have set up preferences for an exiting prefix and exiting system (see Preferences... on the Special menu in *The Teacher's Reference*), that exiting system in the exiting prefix will be run automatically.

Otherwise, you can turn off the Apple II, or you can insert another disk and reboot the computer by holding down the Control and Ö keys and pressing Reset.

- *Advanced users:* If you are familiar with prefixes and pathnames, you can tell ProDOS directly which Tutor-Tech program you want to use next. Tutor-Tech's disks are named "/TEACHER", "/STUDENT", and "/GRADER" (one of these would be your next prefix), and Tutor-Tech's programs are named "TEACHER.SYSTEM", "STUDENT.SYSTEM", and "GRADER.SYSTEM" (one of these would be the pathname).

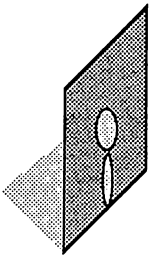
Methods of scoring

Tutor-Tech is designed to score students in any classroom environment, whether they all use one computer, or they each use their own computer, or they use computers on a network. Furthermore, students may be scored on one stack, several stacks, or several linked stacks. To accommodate all of these situations, you will need the help of the Grader disk.

- ❖ *If you have a network,* a special license will be required to use Tutor-Tech software on the network. There is no extra charge for this; contact us for the details.
- ❖ *Without the Grader disk,* a student's final score only appears on the screen after the stack is completed (you can also print out the score).

In any case, a score file must be paired with a stack on a working copy of the Student disk. This is the basic unit of scoring: a Student disk, a stack, and a score file. In the *Tutorial*, you learned about the process behind scoring:

- ✓ You use the Teacher program to develop a stack,
- ✓ You save a final version of that stack on a Student disk (i.e. "English"),
- ✓ You use the Grader program to type in student names,
- ✓ You save those names into a score file on the same disk with the stack's name plus ".Scores" (i.e. "English.Scores").



English
English.Scores

This Student disk would then be ready to be used by *one student* on *one computer*. If you made 30 copies of it, *thirty students* could sit at *thirty computers* and go at it. But what are the other possibilities??

- ✓ Your students could pass around one Student disk. If they don't need to use the stack simultaneously, this method can save you from making many copies of the disk.
- ✓ Your students could, one by one, use the stack with one Student disk at one computer. This method also saves you from making many copies of the disk.
- ✓ If you have a shared disk or network, all of your students could use a stack simultaneously. Here, the Student program, the stack, and the score file are all put on a shared hard disk and the students use the stacks from there. Your students would not need any floppy disks.

Whatever setup suits you best, you need to follow one rule to score successfully: *collect each and every score file*. If you used one Student disk or one common hard disk, only one score file will need to be collected with the Grader software (refer to the next section). If more than one Student disk is employed, the score file on each disk will need to be collected (also refer to the next section).

Important

The Student program has a preferences file like the Teacher and Grader programs. These preferences can startup a stack automatically and help make working with ProDOS easier. However, the Student program is incapable of changing those preferences. *You need to use the Preferences... feature in either the Teacher or Grader programs:* use it to load a Student preference file, make changes, and then write it back (described below).

The Student preferences are:

- ✓ The **Startup Prefix** is the disk or directory (folder) where your stacks, score files, and other files reside. If not specified, the Startup Prefix is assumed to be the prefix name of the Student disk or, on a hard disk, the prefix name of the directory (folder) where the Student program resides.
- ✓ The **Exiting Prefix** is the disk or directory (folder) to be used whenever you leave the Student program (either by clicking the exit door or pressing Control-Reset).

- ✓ The **Exiting System** is the program to be run whenever you leave the Student program (either by clicking the exit door or pressing Control-Reset).
- ✓ The **Startup Stack** is the stack to be automatically presented whenever you boot the Student disk.
- ✓ The **Scores Prefix** is where a score file can be found for the Startup Stack (and other stacks). This prefix is helpful if you like to keep score files on other disks or in other directories. If not specified, the software will look for the score file in the same place as the stack.

For example, you could set up these preferences:

Startup Prefix = /STACKS

If you like to use stacks on a separate disk called "/STACKS", rather than on the Student disk, you set the Startup Prefix this way.

Exiting Prefix = /GRADER
Exiting System = GRADER.SYSTEM

To automatically run the Grader program after leaving the Student program, you set the Exiting Prefix to "/GRADER" (the ProDOS name of the Grader disk) and Exiting System to "GRADER.SYSTEM" (the ProDOS name of the Grader program). Now, whenever you click the exit door or press Control-Reset, make sure the Grader disk is already in a disk drive because the Apple II will immediately look for and run the Grader program.

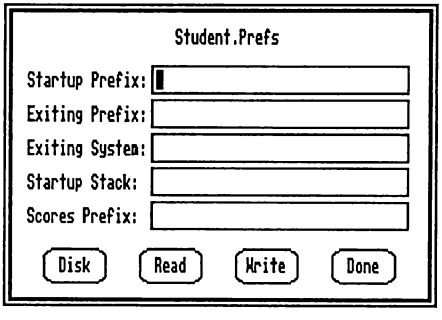
Startup Stack = English

If you want to automatically present a stack called "English" on the disk called "/STACKS", set this preference this way. Therefore, students won't have to choose the stack with the book icon.

Scores Prefix = /SCORES

If you like to keep score files on a separate disk called "/SCORES", rather than on the Student disk or your disk called "/STACKS", you set the Scores Prefix this way.

To see the preferences of a Student disk, you will use the Preferences... feature in either the Teacher or Grader programs. So, boot up the Teacher disk, choose Preferences..., make sure the Student disk is in a disk drive, click the Disk button to change over from the Teacher disk to the Student disk, and choose the file "Student.Prefs". The preferences, if any, will appear in the dialog box. You can type right over the old preferences; the hand control and the four arrow keys will help you move the cursor around. Click Write to save the preferences back to the disk, and click Done when you're finished.



The Grader's icons

The four icons in the Grader program help you manage student scores. You click an icon to use it, much like using a tool in the Teacher program (except that icons do not stay highlighted). Each icon is described individually in this section.

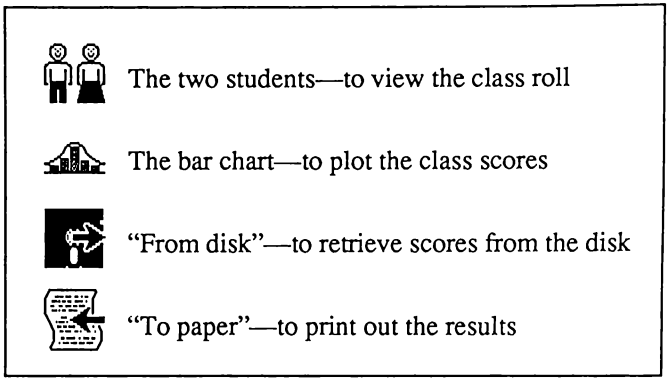

The two students—to view the class roll
The bar chart—to plot the class scores
"From disk"—to retrieve scores from the disk
"To paper"—to print out the results

Figure 41
The Grader's icons

The Grader's icons have two curiosities.

First, consider the icons of the two students and the bar chart. Together, they determine *how* you see the class: either a list of student names and scores, or a chart of final grades. In the *Tutorial*, these two icons were shown to control the mode of operation.

Second, consider the "from disk" icon. It has a purpose only *after* you have used the Open... feature on the File menu. It makes collecting scores from many Student disks easy (see below for a full description).

Keep these curiosities in mind as you continue through this reference section.

1 View the class roll (the two students)

Click the icon of the two students to view the class as a list of student names and scores. The other mode of operation is viewing the class as a bar chart of grades.

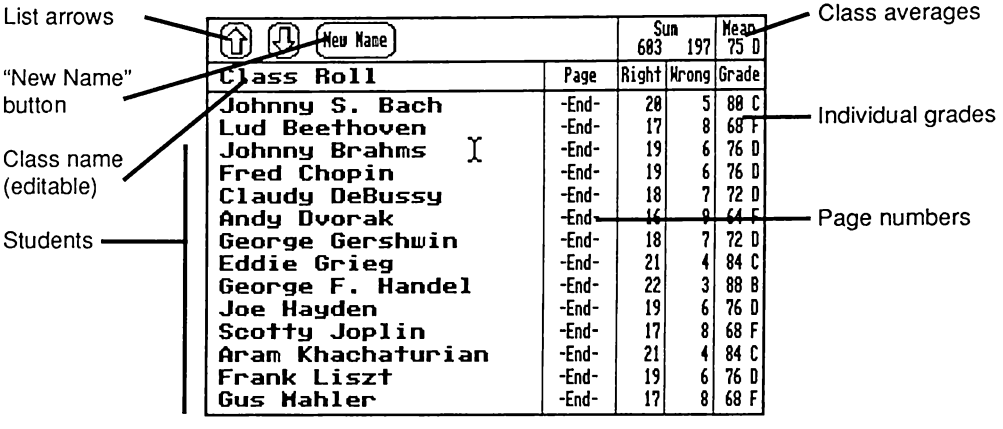

List arrows
"New Name" button
Class name (editable)
Students
Class averages
Individual grades
Page numbers
New Name
Sum 683 197
Mean 75 D
Class Roll
Page
Right
Wrong
Grade
Johnny S. Bach -End- 20 5 80 C
Lud Beethoven -End- 17 8 68 F
Johnny Brahms -End- 19 6 76 D
Fred Chopin -End- 19 6 76 D
Claudy DeBussy -End- 18 7 72 D
Andy Dvorak -End- 16 9 64 F
George Gershwin -End- 18 7 72 D
Eddie Grieg -End- 21 4 84 C
George F. Handel -End- 22 3 88 B
Joe Hayden -End- 19 6 76 D
Scotty Joplin -End- 17 8 68 F
Aram Khachaturian -End- 21 4 84 C
Frank Liszt -End- 19 6 76 D
Gus Mahler -End- 17 8 68 F

Figure 42
Working with a class roll

■ From entering names to grading scores

The process of creating a class roll and grading the scores is a two step process.

First, you develop the class roll. You type the student names into the class roll. New students won't have grades because there are no scores yet. Save this class roll on the disk with the stack to be graded; give it the name of the stack plus ".Scores". After the students use the stack, scores will be ready to collect.

Then, you grade the class scores. You retrieve the scores from disk, and begin grading. For each student, the number of right and wrong responses are used to figure a percentage (based on the curve chosen on the Curve menu). The percentage, in turn, is used to figure a letter grade (based on the grade ranges or quotas chosen on the Grade menu).

■ Maintaining names on a class roll

When the list of students appears on the screen:

- ✓ You can use the list arrows to scroll through the list.
- ✓ You can use the "New Name" button to add a new student.
- ✓ You can change the class name by clicking *directly* on it and typing over it (i.e. change "Class Roll" to "English 1"); this new name will appear on printouts of the list and the bar chart.
- ✓ You can change student names by clicking *directly* on them and typing over them.
- ✓ You can move between student names: the four arrow keys move around, Return moves to the next student name, and Escape stops editing.
- ✓ You can delete student names by clicking *directly* on them, spacing over all letters in the name, and then pressing Return.

■ Grading a class roll

The class roll also shows items such as percentages, letter grades, and class averages. These items are not editable; instead, use of the Curve and Grade menus will change them indirectly. After choosing a new curving or grading method, the grades on the list will be recalculated instantly!

- ✓ The class averages show the total number of right and wrong responses, the class's mean percentage, and the average letter grade.
- ✓ The individual grades show student performance in terms of the number of right and wrong responses, the resulting percentage, and a final letter grade.
- ✓ The page numbers show where each student left off in the stack. If a student stopped in the middle of a stack, the page number where they stopped will appear here. "-End-" will appear if they finished the stack, and "-Start-" will appear if the stack wasn't even started.

2 Plot the class scores (the bar chart)

Click the icon of the bar chart to plot the class grades. The other mode of operation is viewing the class as a list of students.

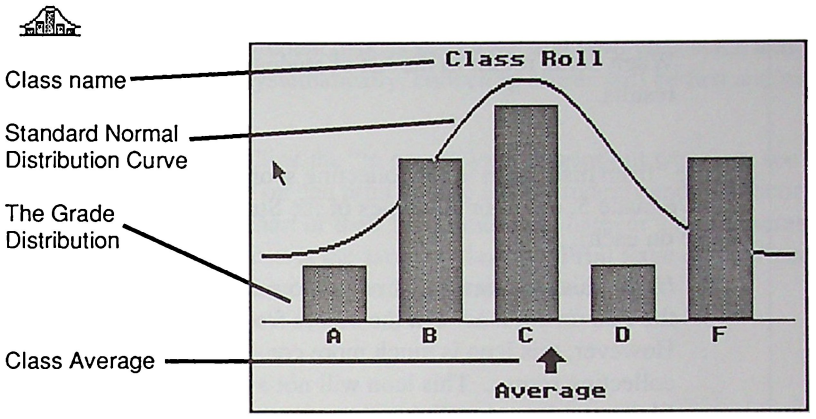


Figure 43
Plotting the final grades

The parts of the chart are as follows:

- ✓ The class name at the top can identify one set of printouts from another. You can change the class name while viewing the list of student names and scores (in the other mode of operation). That change will be reflected here.
- ✓ The Standard Normal Distribution Curve (or "The Bell Curve") in the background comes from the world of mathematics and probability; it can be used as a guide when curving and grading the scores. This curve represents a "Normal Distribution" or one in which most grades fall in the center (i.e. C) and the rest taper off evenly to each side. It can help promote fair grading.
- ✓ The grade distribution has one bar for each letter grade. It represents the final letter grades graphically, rather than numerically.
- ✓ The class average is indicated by the large arrow under the chart. In the above example, it shows a C- class average (between a C and a D).

There's nothing to click on the bar chart... that is, there's nothing you can change directly. However, you can use the features on the Curve and Grade menus while viewing the bar chart. Immediately after you use one of these features, all of the final grades will be

refigured and the chart will be redrawn.

- *Advice:* You can quickly arrive at the best combination of curving and grading while viewing the bar chart. Use the Curve and Grade menus and watch the distribution change instantly. When done, return to the list of students and print out the results.

3 Retrieve from disk (from disk)

The "from disk" icon is for collecting scores en masse, whether you have made 5, or 10, or 50 copies of the Student disk (with a score file on each).

- *Hint:* This icon has the same purpose as the Add in... feature on the File menu; it adds in the scores from another score file. However, this icon is much more convenient to use when collecting scores. This icon will not ask you to choose a score file every time you click it; it assumes the score file name and disk name stay the same.

To begin collecting scores, choose the Open... feature on the File menu and open the score file on the first Student disk. This will identify the score file whose scores are being collecting. It will also retrieve the first score; only one student will exhibit a score (1). Now, you're set to make use of the "from disk" icon. Insert the next Student disk and click the "from disk" icon; one more score will be collected (2). Repeat this process for every Student disk and the complete set of scores will result (3).

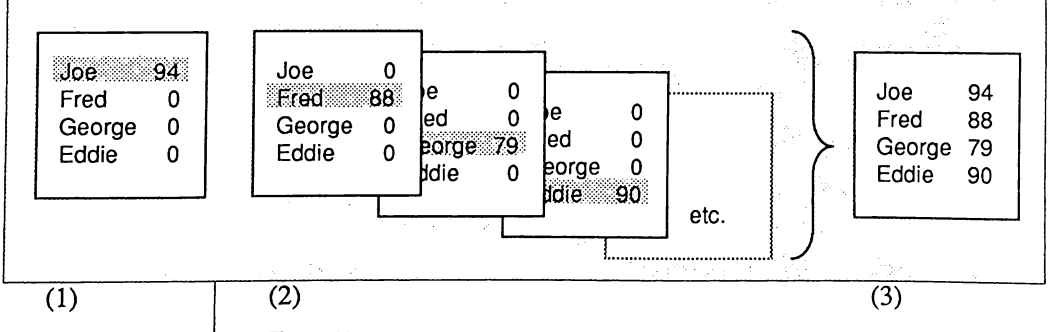


Figure 44
The two part process of collecting scores
First choosing Open... and then repeatedly clicking the "from disk" icon

Collecting scores as shown above assumes that all disks have the same ProDOS name, and that the score files on those disks all have the same names. If you have any troubles while collecting scores, check the disk and file names first. If you copy your original Student disk as instructed and save your stack and score files systematically, collecting scores will be fast and easy.

4 Print out results (to paper)

Click the "to paper" icon to print out what you see on the screen. You can print out the list of students and their scores, or the bar chart of their final grades—whatever's on the screen. Clicking this icon is the same as choosing Print Page on the Special menu (see Print Page in *The Grader's menus*).

The Grader's controls

The Grader's controls are a collection of visual cues on the screen. You operate some of them by clicking them. Each control is described individually here.

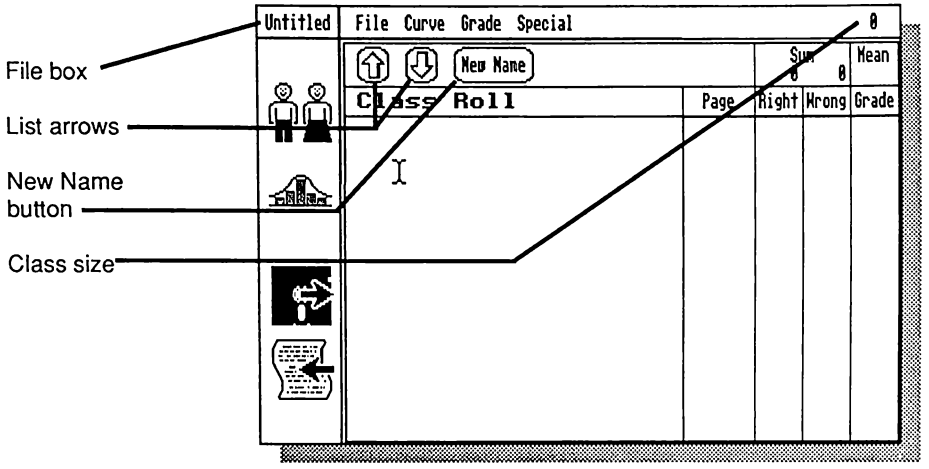
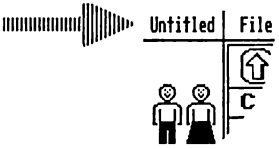


Figure 45
The controls on the Grader's screen

1 The file box

The **current class roll** is the one you're working on. Its name appears in the file box in the upper left corner of the screen. If you are distracted, the file box will tell you what class roll this is.



If you just started up an Apple II with the Grader disk, you're ready to create a new class roll. The name "Untitled" will be used until you save this class and give it a name.

2 **Up and down list arrows**

The up and down list arrows will scroll you through the list of student names and scores (only thirteen students can be seen at once). If you click a list arrow and hold down the button on the hand control, the list will scroll continuously.

For more about the list arrows and viewing the class as a list, refer to the earlier section on the icon of the two students.

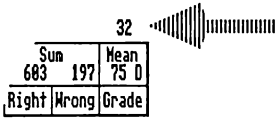
3 **"New Name" button**

You can add a new student to the class roll by clicking the New Name button. New students are always added at the bottom of the list; you will automatically scroll to the bottom of the list and a blinking cursor will await the name of the new student. Press Escape to cancel entering a new student.

For more about the New Name button and viewing the class as a list, refer to the earlier section on the icon of the two students.

4 **Class size**

Most class rolls have about thirty students. The class size will inform you of the number of students in the current class roll. It appears in the upper right corner of the screen after the menu names.



The largest possible class size is 191 students (see *Managing your class rolls*).

The Grader's menus

Here are the Grader's menus. Each menu feature is described individually in this section.

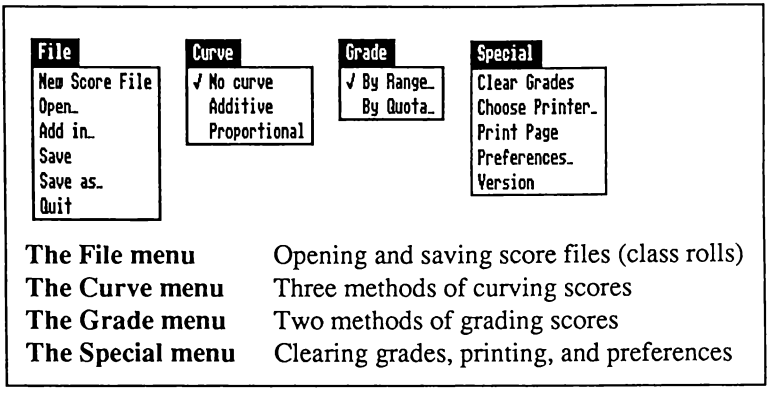


Figure 46
The Grader's menus

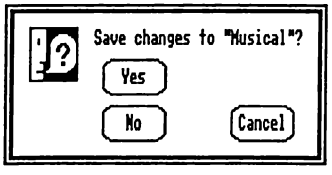
❖ *The menu features in the Grader program have no Command key short cuts at present.* The Teacher program has Command keys, because more time is spent creating stacks than grading them.

1 The File menu

The File menu has features which involve whole score files: starting new ones, opening existing ones, saving them, and more. You also use the File menu to leave the Grader program.

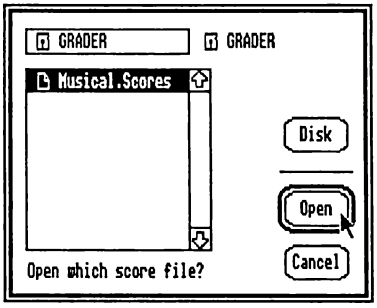
■ New Score File

Choose New Score File to clear the screen and create an empty score file called "Untitled". If you were working on a score file and hadn't saved your changes, you will first be asked if you want to save those changes.



■ **Open...**

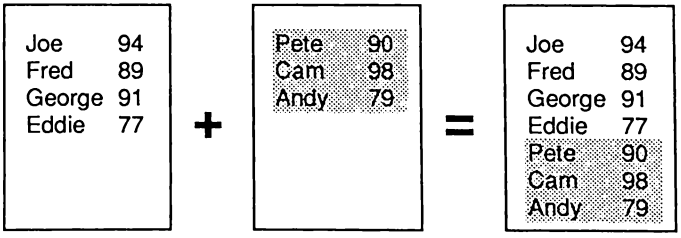
Choose Open... to retrieve a score file from a disk, either to maintain the list of students or to grade the accumulated scores. A dialog box will ask you to choose a score file. Usually, the score file you want is on the list, so you click its name and then click the Open button. However, if the score file does not appear, it may be on another disk or in another sub-directory (see *Working with disks* in the *Appendices* if you need help).



Only one score file can be open at a time. If you're already working on one score file, save your work before you open another.

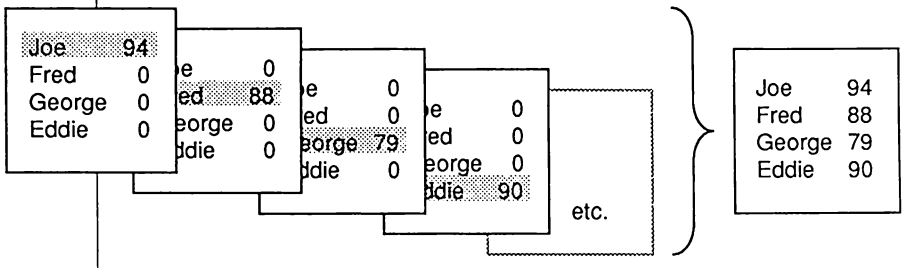
■ **Add in...**

Choose Add in... to combine two score files. The students in the score file you choose will be added on to the end of the current list of students.



However, if the added-in score file has the same student names as the current score file, something different happens. The names are

not new, so they are not added to the end. Instead, the scores are essentially collected.



- *Hint on collecting scores:* This feature has the same purpose as the "from disk" icon; it adds in the scores from another score file. However, *the icon is much more convenient to use when collecting scores*. The icon will not ask you to choose a score file every time you click it; it assumes the score file name and disk name stay the same.

In another case, if the added-in score file has the same student names *and* another set of scores (i.e. from another test), the numbers of right and wrong responses will be added together from the two score files... averaging the scores in the process.

Joe	94	+	Joe	100	=	Joe	97
Fred	89		Fred	91		Fred	90
George	91		George	81		George	86
Eddie	77		Eddie	97		Eddie	87

After you choose Add in..., a dialog box will ask you to choose a score file. Usually, the score file you want is on the list, so you click its name and then click the Open button. However, if the score file does not appear, it may be on another disk or in another sub-directory (see *Working with disks* in the *Appendices* if you need help).

Whenever you add in another score file, there is a chance that you'll run over the maximum number of students. The highest possible number of students is 191; see *Managing your class rolls* at the end of *The Grader's Reference* if you need more information.

■ **Save**

Choose Save to save the current score file. If the class roll already has a name, it will be saved right away. If the score file is new, you will be asked for a name (as if you chose Save as...; see below).

Important

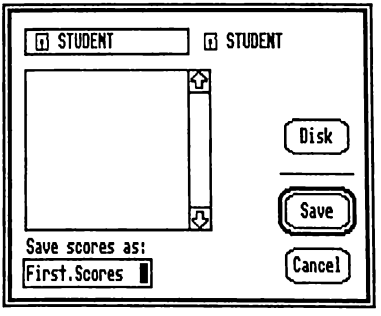
It is suggested that you save your work at least *every half hour*. If you leave your disk in the drive, choosing Save will save your latest changes fast and you can return to work almost immediately. Make it a habit—and prevent brief power-outs from ruining your day.

The Save feature can be very helpful in preparing Student disks for use. If you needed, for instance, to put a new score file on 30 Student disks, you could choose Save as... (below) to save the stack on the first disk. Then, since each disk probably has the same name ("/STUDENT"), you could insert one after another and choose Save each time. It's fast and easy, and you may find it easier than using your favorite file-copying utility.

However, if you are preparing a number of Student disks with a new series of stacks and their score files, using Save will take up time. *For each score file,* you would have to insert each disk and choose Save; it would no longer be fast or convenient. Instead, in this case, save each new score file in the series on the first Student disk and then copy the entire disk on to each of the other Student disks.

■ **Save as...**

Choose Save as... to save your score file under a new name. A dialog box will ask you for a name and, usually, you'll type it in and click the Save button. However, you may want to save the score file on another disk or in another sub-directory (see *Working with disks* in the *Appendices* if you need help).



❖ *Save as... has three uses:* you can save a new score file (which has no name yet), or you can save an existing score file under a new name, or you can save an existing score file on another disk or in another subdirectory.

After you supply a name and click the Save button, one of several messages may appear: a file on the disk may already have that name, the disk may be full, or the disk may be write-protected. If you are not familiar with such situations, you can look up the message in the *Appendices* if one appears.

Once you save the score file, the Save feature will save the latest version of your file immediately without asking you for a name.

■ **Quit**

Choose Quit to leave the Grader program. If you forget to save changes to your score file, a dialog box will remind you.

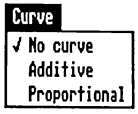
❖ *If you like to press Control-Reset or Control-Ó-Reset:* try to break the habit and choose Quit instead. Control-Reset is recognized as a substitute for Quit; however, no dialog box will ever appear to remind you to save your work. Furthermore, this key combination is remarkably close to Control-Ó-Reset, which reboots the computer instantly without reminders or consideration for user preferences.

After you choose Quit, ProDOS will ask you what program you want to use next. If you have set up preferences for an exiting prefix and exiting system (see Preferences... on the Special menu), that exiting system in the exiting prefix will be run automatically when you choose Quit.

Otherwise, you can turn off the Apple II, or you can insert another disk and reboot the computer by holding down the Control and Ó keys and pressing Reset.

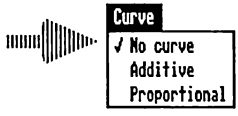
❖ *Advanced users:* If you are familiar with prefixes and pathnames, you can tell ProDOS directly which Tutor-Tech program you want to use next. Tutor-Tech's disks are named "/TEACHER", "/STUDENT", and "/GRADER" (one of these would be your next prefix), and Tutor-Tech's programs are named "TEACHER.SYSTEM", "STUDENT.SYSTEM", and "GRADER.SYSTEM" (one of these would be the pathname).

2 The Curve menu



The Curve menu offers three ways of curving the scores: No curve, Additive, and Proportional. For each method, the mathematics involved and an example are included in the descriptions below. To begin with, the curving method is No curve.

This menu is different from most other menus. Its three features are mutually exclusive; one of the three (the last one chosen) is *in effect*. A check-mark will appear on the menu next to the curving method being used.



Before you read about each curving method, realize *what* is curved: the percentage. Percentages are computed from the number of right and wrong responses, and curving can affect this computation. If, on the other hand, you want to affect how letter grades are assigned, use the Grade menu.

Furthermore, each percentage is rounded to a whole number to be displayed on the list of students on the screen. All percentages with a fraction .5 or higher are rounded up; all with less than .5 are rounded down.

■ No curve

Choose No curve to use the raw percentage calculated from the number of right and wrong responses. Simply put, if Joe gets 9 right and 1 wrong (9 out of 10), the result will be a 90%. In general, the formula involved looks like this:

$$\left(\frac{\#right}{\#right + \#wrong} \right) * 100\% = Percentage$$

Figure 47
The formula for figuring percentages without a curve

■ **Additive**

Choose Additive to take the raw percentage and add the difference between the highest raw percentage and 100%. So, if Joe's raw percentage is a 90% but the highest raw percentage in the class is a 98%, he will get a 92% (100%-98%=2% added to all students).

Everyone in the class will get the extra points, even the highest score. So, the person who 'made' the curve and got a 98%, will actually get a 100%. Here's the general formula:

$$\left(\frac{\#right}{\#right + \#wrong} \right) * 100\% + (100\% - \text{Best raw percentage}) = \text{Percentage}$$

Figure 48
The formula for figuring percentages with an additive curve

Of course, if the highest grade is 100%, the Additive curve will have no affect on the scores.

■ **Proportional**

Choose Proportional to figure percentages by taking the number of right responses and dividing by the highest number of right responses in the whole class. Surprisingly, the number of wrong answers are not used in the calculations at all. The proportional method assumes that a perfect grade is the highest achieved. So, if Joe makes a 80% but the highest raw percentage in the class is a 86%, he gets a 93% (80/86=93%).

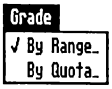
Everyone in the class is graded in terms of the best score and, of course, the person with the highest score will get a 100%. Here's the general formula:

$$\left(\frac{\#right}{best\ \#right} \right) * 100\% = \text{Percentage}$$

Figure 49
The formula for figuring percentages with a proportional curve

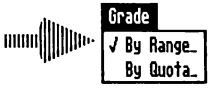
Of course, if one student got every question right, the Proportional curve will have no affect on the scores.

3 The Grade menu



The Grade menu offers two ways of grading the scores: By Range and By Quota. Examples for each method are included in the descriptions below. To begin with, the method of grading is By Range.

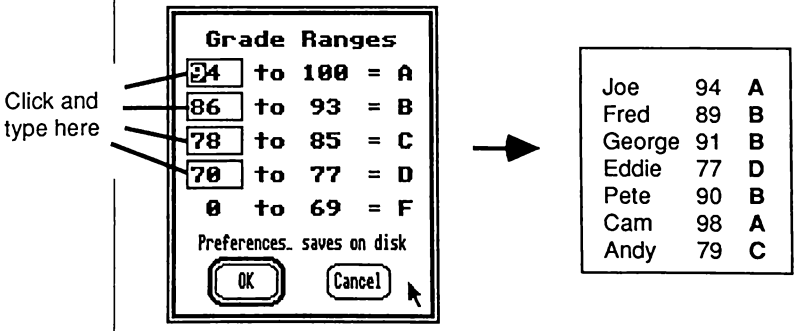
This menu is different from most other menus. Its two features are mutually exclusive; the one chosen last is *in effect*. A check-mark will appear on the menu next to the grading method being used.



Before you read about each grading method, realize *what* is graded: the final letter grade. Letter grades are figured from the percentages, and grading by ranges or by quotas can affect that process. If, on the other hand, you want to affect how the percentages are originally calculated, use the Curve menu.

■ By Range...

Choose By Range... to change the five ranges of percentages used to assign the letter grades A, B, C, D, and F. Change any or all of the ranges, click the OK button, and all of the letter grades will be refigured instantly!

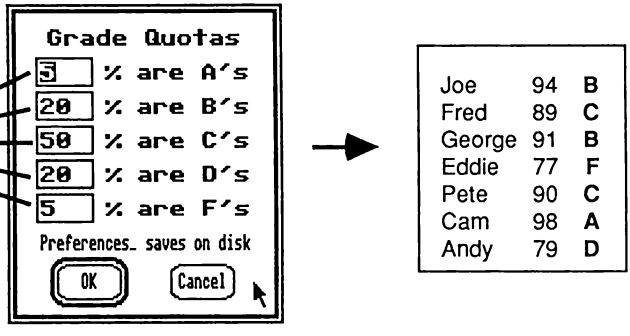


What about a grade like 93.5% in the above ranges? All fractional percentages are rounded before they are displayed, and that rounded

percentage will be compared to the above ranges. So, a 93.5% becomes a 94% which is, by the above ranges, assigned the letter grade "A".

- **By Quota...**

  Choose By Quota... to change the quotas used to determine how many students get A's, B's, C's, D's, and F's. Change any or all of them, click the OK button, and all of the letter grades will be refigured instantly!



Notice that this method can be a little harsher than grading By Range. While it assures that *some students get A's*, regardless of their percentage, it also makes sure that *some get low grades*, regardless of their percentage.

Important

Use quotas at your own discretion! This software provides quotas because it is an accepted grading practice in some schools; however, your school may not allow quotas.

Is the quota always executed exactly? No; sometimes it is not possible. Here are three scenarios, illustrated in the next figure, of how quotas are figured:

I. A perfect quota is figured when unique grades are found *within* a letter grade's quota.

II. A quota begins to stretch when like grades cross the boundary between two letter grades (i.e. everyone earning an 89 must receive the same letter grade). So, the quota stretches to be fair and all students with the same percentages will receive the same letter grade. To compensate, the quota for the next lower letter grade will be encumbered and fewer students will receive the next lower letter grade. This helps get the quota *back on track.*

III. In extreme situations of case II (above), a quota can stretch so far that entire letter grades go unassigned in the class (i.e. if everyone had an 87, everyone would get A's and no B's, C's, D's, or F's would even be assigned).

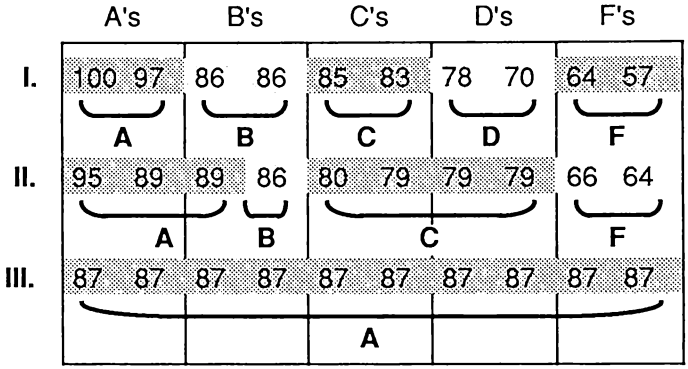
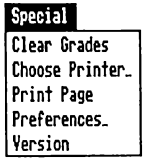


Figure 50
How grade quotas are applied

When you are changing the quotas, keep in mind that they *must* add up to 100%. If you enter quotas that don't add up, a message will remind you.

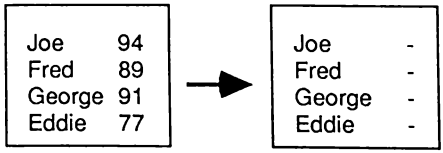
4 The Special menu



The Special menu has features for clearing scores, printing, changing printers, setting preferences, and more. Most of these features are also on the Special menu in the Teacher program; so, their descriptions below may refer to *The Teacher's Reference*.

■ Clear grades

Choose Clear grades to erase all scores from the list of students on the class roll. All of the students will appear as if they had just been typed in on a new class roll.



This feature can be a big help. If a class is about to use a stack and be graded on it, you can open an old score file of theirs, clear the old scores, and save the class roll under a new name. *This saves you from typing in their names over again!*

If you choose Clear Grades by accident, there's no Undo feature. But don't worry... if you retrieve the score file from the disk again, all of the scores will still be there. Specifically, choose Open... on the File menu, choose No when asked about saving your work, and then choose the score file again.

- **Choose Printer...**
  Print Page...

  The Choose Printer... and Print Page features have the same functions as their counterparts on the Special menu in the Teacher program. They are both explained in *The Teacher's menus*.

- **Preferences...**

  Choose Preferences... to set up ProDOS oriented preferences, which make working with files easier. However, this is an advanced feature and should only be used when you understand these preferences (this is all very similar to Preferences... in the Teacher program):

  ✓ The **Startup Prefix** is the disk or directory (folder) where your score files and other files reside. If not specified, the Startup Prefix is assumed to be the prefix name of the Grader disk or, on a hard disk, the prefix name of the directory (folder) where the Grader program resides.

  ✓ The **Exiting Prefix** is the disk or directory (folder) to be used whenever you leave the Grader program (either by Quit or Control-Reset).

  ✓ The **Exiting System** is the program to be run whenever you leave the Grader program (either by Quit or Control-Reset). If not specified, you will be asked for an exiting system.

  ✓ The **Startup Scores** is the score file to be opened automatically whenever you run the Grader program.

For example, you could set up these preferences:

Startup Prefix = /SCORES

If you like to develop score files on a separate disk called "/SCORES", rather than on the Grader disk, you set the Startup Prefix this way.

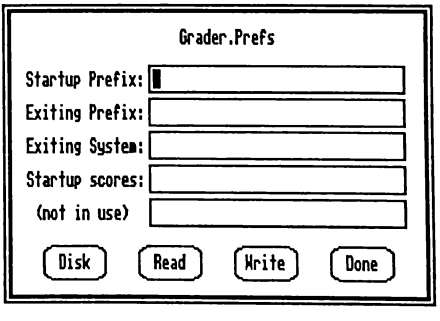
Exiting Prefix = /TEACHER
Exiting System = TEACHER.SYSTEM

To automatically run the Teacher program after leaving the Grader program, you set the Exiting Prefix to "/TEACHER" (the ProDOS name of the Teacher disk) and Exiting System to "TEACHER.SYSTEM" (the ProDOS name of the Teacher program). Now, whenever you choose Quit or press Control-Reset, make sure the Teacher disk is already in a disk drive because the Apple II will immediately look for and run the Teacher program.

Startup Scores = English.Scores

If you want to open a score file called "English.Scores" every time (maybe it's your only score file), you can side-step choosing the Open... feature each time you begin work. The score file called "English.Scores" on the disk called "/SCORES" (the Startup Prefix set earlier) will be opened automatically upon bootup.

To see what the preferences are on your Grader disk, choose Preferences... and, making sure the Grader disk is in a disk drive, click the Read button. The preferences, if any, will appear in the dialog box. You can type right over the old preferences; the hand control and the four arrow keys will help you move the cursor around. Click Write to save the preferences back to the disk.



While the preferences dialog box is still on the screen, you can change preferences on other disks. To do so, click the Disk button, choose a preferences file on a different disk, and then repeat the process described above: click Read, make your changes, and click Write to save the new preferences back to the disk.

Click Done when you're all finished setting preferences.

- ❖ *Preferences... can also save your curving, grading, and printer preferences.* When you save preferences, you also save your curving method on the Curve menu, your grading method on the Grade menu (and the ranges and quotas), and your printer choice and slot location as decided with the Choose Printer... feature. Therefore, make use of these menus, and then choose Preferences... and click the Write button. Easy!

■ Version

Choose Version to display the version number and unique serial number assigned to this software. A version number is to software what an edition number is to books. Together, the version and serial numbers come in handy if you contact Techware Product Support, because they completely describe the software and would help us diagnose problems quickly (see *Service and Support* in the *Appendices*).

Managing your class rolls

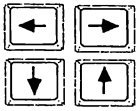
The Grader can handle 191 students. Most classes, and probably yours, have about 30 students.

If your class has more than 191 students, divide the class roll and save the students into separate score files (i.e. "English1.Scores", "English2.Scores", etc.). Whatever your activity after that, consider each group of students as a class: from copying Student disks to grading their scores. Their combined scores will represent the original class of more than 191 students. *Only curving their percentages as one big class is no longer possible.*

APPENDIX A: The keyboard

1 Special keys

Normal keys, when pressed, put on the screen what is on the key. On the other hand, special keys have functions and, sometimes, those functions can vary from situation to situation.



The four arrow keys move the typing cursor in all four directions.

While responding to a dialog box, you can press the up and down arrow keys to move between text fields.

While presenting a stack (using the keyboard only), the arrow keys move the cursor to the next button.

Press the Escape key in the Student program to stop the stack.

While responding to a dialog box, you can press the Escape key instead of clicking the Cancel button.

Press the Delete key to rub out the preceding character. It makes it easy to correct typing mistakes.

While typing, press the Tab key to insert space. All of the characters to the right will be pushed forward.

While responding to a dialog box which works with disks, you can press the Tab key instead of clicking the Disk button.

While typing, the Return key moves down a standard distance to the next line. Typing will resume beneath the first character of the line above. You don't have to manually click at the beginning of the next line... you just press Return.

While responding to a dialog box, you can press the Return key instead of clicking the OK button.

If a dialog box requires you to type one or more items, you can press Return to move from one item to the next. On the last item, you can press Return instead of clicking the OK button.

As you would expect, the Shift key affects whether letters are in upper or lower case and whether the ten digits (1-9 and 0) become symbols on the screen.

The Shift key, in combination with the Option (♦) key, can help generate international and alternate characters (see the *Character set*, next).

The Control key, in combination with the Option (♦) key, can help generate international and alternate characters (see the *Character set*, next). For joystick users, the Control key is a substitute for the Command key when entering Command key short cuts.

IIe,IIc

IIGS

The Option key (♦) is the 'hot key' for generating international and alternate characters (see the *Character set*, next).

IIe,IIc

IIGS

The Command key (♦) is your short cut to menu features (joystick users substitute the Control key). When you pull down a menu, if a feature has a ♦ and a letter next to it, the feature is said to have a 'Command key'. That means, instead of pulling down the menu, you can hold down the Command key and press that letter.

The Caps Lock key is slightly different from other keys. It has an up and a down position. When in the down position, all letters are in upper case (like the Shift key). However, Caps Lock only affects the letters of the alphabet and, unlike the Shift key, it does not turn the ten digits (1-9 and 0) into symbols.

- *Advanced users:* holding down both ♦ and Shift, and pressing 3 will capture the screen's image, just as on a Macintosh. No matter what you are doing, the cursor will freeze and the screen's image will be stored on the last used disk, split into two hi-resolution picture files (280 x 192 pixels) called "Screen.Dump" and "Screen.Dump.AUX". Like Beagle Graphics files, the screen's image takes up two files on disk, because it is a double hi-resolution image (560 x 192 pixels).

Tutor-Tech offers a complete character set, including foreign characters, mathematical and scientific symbols, and Greek letters. The unusual characters are shown below with their key combinations. For example, to type the copyright symbol, you hold down the Option (⌥) key and press "G". For another example, say the Greek letter Pi (π), you hold down the Control and Option (⌥) keys, and press "P".

❖ *Macintosh users:* Tutor-Tech supports the entire Macintosh international character set, with the same keystrokes!

Key	With ⌥	Shift-⌥	Control-⌥	Key	With ⌥	Shift-⌥	Control-⌥
A	å	Å	α	` ~	grave accent		
B	∫		β	1 !	¡		¡
C	ç	Ç	γ	2 @	™		·
D	∂		Δ	3 #	£		£
E	acute accent		ε	4 $	¢		¢
F	ƒ		φ	5 %	∞		∞
G	©		η	6 ^	§		→
H			θ	7 &	¶		¶
I	circumflex		∫	8 *	•	°	•
J	Δ		ψ	9 (	ª		ª
K			°	0)	º		º
L	¬		λ	– _	-	—	∞
M	µ		µ	= +	≠	±	≠
N	tilda		ν	Delete	■	■	■
O	ø	Ø	±	[{	"	”	Ω
P	π	∏	π	] }	'	’	↔
Q	œ	Œ	Å	\ |	«	»	←
R	®		√	; :	…		…
S	ß		σ	' "	æ	Æ	æ
T	†		Σ	, <	≤		≤
U	umlaut		≠	. >	≥		≥
V	√	◊	≐	/ ?	÷	¿	÷
W	Σ		≡	space	▩	▩	▩
X	≈		<>				
Y	¥		≈				
Z	Ω		ω				

Figure 51
Tutor-Tech's character set

To put a diacritical mark over a letter, hold down the Option (⌥) key and press the character associated with the desired diacritical mark. Then, you release those keys and press the letter needing the diacritical mark. For example, to type an "e" with a European umlaut ("ë"), you hold down the Option (⌥) key and press "u" for umlaut. Then, you release those keys and press "e".

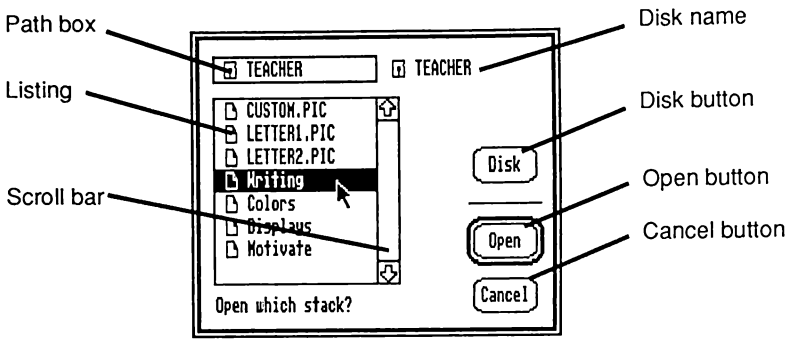
Grave accent:	⌥-`	*followed by*	a e i o u A
		becomes	à è ì ò ù À
Acute accent:	⌥-e	*followed by*	a e i o u E
		becomes	á é í ó ú É
Circumflex:	⌥-i	*followed by*	a e i o u
		becomes	â ê î ô û
Umlaut:	⌥-u	*followed by*	a e i o u y A O U
		becomes	ä ë ï ö ü ÿ Ä Ö Ü
Tilde:	⌥-n	*followed by*	a n o A N O
		becomes	ã ñ õ Ã Ñ Õ

Figure 52
Tutor-Tech's diacritical marks

Not all letters can have diacritical marks, because not all characters need them. The above combinations satisfy the needs of the French, German, and Spanish languages.

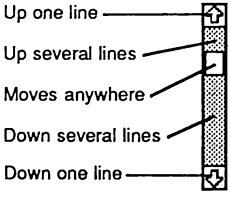
APPENDIX B: Working with disks

Whenever you retrieve or save your work, a special dialog box will appear. It will have extra features to make working with disks convenient.

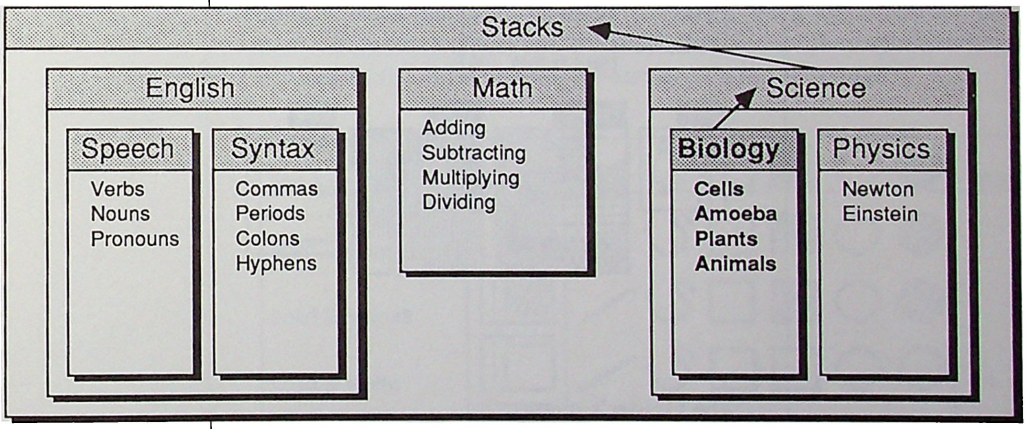


Usually, you merely choose a file name (to open it) or type a file name (to save it), and then click the default button (in the above case, the Open button). But if the desired file does not appear, or if you want to save the file somewhere else, you may want to look on another disk or into another sub-directory. Therefore, the other parts of the dialog box come in handy:

- ✓ The **Disk name** shows you the name of the disk in use. To use another disk, click the Disk button.
- ✓ The **Disk button** changes the disk in use. When you click the Disk button, the software will go to the next disk drive in search of a disk. Put in your other disk before clicking the disk button. If you click the Disk button repeatedly, it will check all disk drives hooked to your Apple II (in rotation). The keyboard equivalent of the Disk button is the Tab key.
- ✓ The **Open button** will open the selected file on the list. Click it (or press the Return key). In another situation, the Save button would be here; it would store your file under the given name.
- ✓ The **Cancel button** will cancel the action of opening (or saving) a file. Click it (or press the Escape key).
- ✓ The **Scroll bar** is for moving up and down the list. Click on the **scroll arrows** to move up and down; click and hold to scroll continuously. Drag the little elevator to move anywhere. When eight or less files appear, you won't use the scroll bar because you can see the whole list already. The keyboard equivalents of the scroll arrows are the up and down arrow keys.



- ✓ The **Listing** displays the files and directories on the disk. Click directly on the name of a file or directory and then click the default button (i.e. the Open button). Double click (click twice rapidly) a name and you won't need to click the default button.
- ✓ The **Path box** displays the current path in use. The path is where the software looks for files; it's like a trail of instructions for finding a file in a certain folder in a certain file cabinet. Most of the time, it's the name of a disk. However, it could be the name of a subdirectory (folder) on a disk. After going down into directories in search of a file, you need a way of coming back up to the top. Click the path box and you will see the higher-up directories appear. Drag to the directory you want to look in next, even back to the root directory (the disk's name), and release. For instance, if you were in the "Biology" directory (below), which is in the "Science" directory on the disk called "Stacks", you could move up to "Science" or all the way up to "Stacks".



Stack names begin with a letter and can be followed by letters, numbers, spaces, and periods... up to eight characters. So, you can have just about any name.

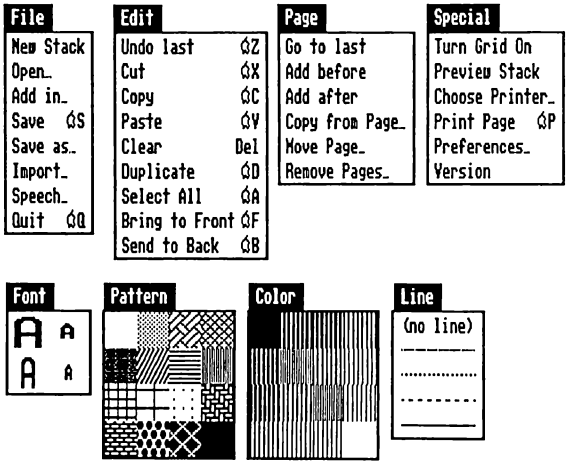
You can find out even more by looking in *The Teacher's Reference*, under the specific menu feature you chose before the dialog box appeared.

APPENDIX C: Quick reference of menu features

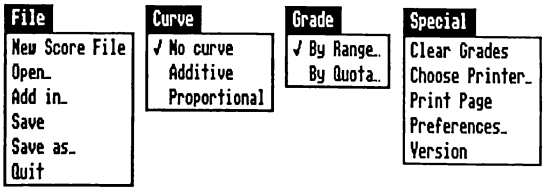
Only the Teacher and Grader programs employ menus (the Student software is operated completely with click-on icons). The quick reference below shows all of the menus pulled down at once. On the screen you can only pull down one menu at a time.

If it will help, you may make a photocopy of this page and keep it beside your computer.

The Teacher's menus



The Grader's menus



APPENDIX D: The effects of graphic preferences

The two graphic preferences supply you with hundreds of drawing combinations of lines, patterns, and colors. This appendix only highlights some of those combinations to make you aware of their graphic diversity.

The first graphic preference is the line type. Use the Line menu to change it. It always starts out as a solid line. This preference determines the appearance of lines, freehand sketching, and the borders of rectangles and ovals.

The second graphic preference is either a color or a black&white pattern. Use the Pattern and Color menus to change it. It always starts out as a gray black&white pattern. This preference will fill the regions of filled rectangles and filled ovals. If it is a color, it will also determine the appearance of lines and freehand sketching, and the borders of nonfilled rectangles and nonfilled ovals.

This is a summary of the effects graphic preferences can have on your drawings. The first two columns have various preferences combinations (including how they appear in the graphic preferences box). Across the chart, you will find the effect of these preferences on each of the drawing tools. *Notes are on the next page.*

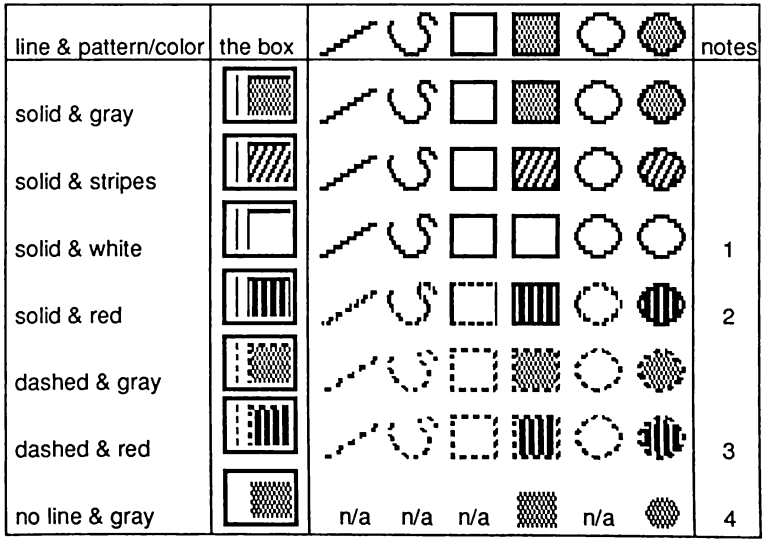


Figure 53
The effects of graphic preferences while drawing

Notes:

1 When filled rectangles and ovals are filled with white, they can appear exactly as nonfilled rectangles and ovals do. However, when positioned over other objects, the filled objects cover up the objects behind them. On the other hand, nonfilled rectangles and ovals are transparent. For example:

Shapes filled with white

Nonfilled shapes

2 Imagine that the lines and borders of nonfilled shapes are actually red; however, the borders of filled shapes are black.

3 Imagine that the dashes in the dashed lines and borders are actually red; however, the dashes around the filled shapes are black.

4 Certain combinations are not applicable because they are not possible. You can't draw lines, freehand sketches, nonfilled rectangles, and nonfilled ovals when the line type is "no line". These drawings need a border of some sort, else they would be completely invisible and without purpose. If necessary, a message will remind you of this fact.

APPENDIX E: Special education

Over the years, these and other ideas have made Tutor-Tech a super tool in special education. This appendix has been provided to help you make the best use of Tutor-Tech in your field.

For the seeing impaired:

- ✓ *Using the Teacher disk.* Make reading easy for the student; use the large text tool to type.
- ✓ *Using the Teacher disk.* If finding buttons is difficult for the student, put some identifiable graphics on the page *near or on top of* the button. Also try transparent buttons.
- ✓ *Using the Teacher disk.* If choosing buttons is difficult for the student, use fields to create fill-in-the-blank questions. The student can then type answers rather than answer true/false and multiple choice questions. Typing in certain cases may require less coordination.

For the hearing impaired:

- ✓ You can add the sound of your recorded voice to your stacks with Tutor-Talk™ (call us for more information).

For the physically handicapped:

- ✓ *Using the Student disk.* If pressing the arrow keys is difficult, use the comparatively larger space bar to choose a button. The space bar is easy to hit, and Return isn't far away.
- ✓ *Using the Student disk.* If using the keyboard is difficult in general, try a hand control. Joysticks can be comforting to some; mice will allow others to rest without losing effort.

For the gifted:

- ✓ *Using the Teacher disk.* Many, very successful projects have used Tutor-Tech as a writing tool for gifted students. *The students use the Teacher disk* to create stories out of words and pictures. Then, they use the Student disk to experience their own stories. If you are interested in starting such a project, remember that you only have the right to copy the Student disk up to fifty (50) times under our standard license (not the Teacher disk). Write to us for information on copying or "site-licensing" the Teacher *and* Student disks. It's economical!

APPENDIX F: Messages and Trouble-shooting

Here is a complete alphabetical list of messages that can appear in Tutor-Tech, with an explanation of each one. If your message begins with a number, look at the beginning of the list.

In the margin next to each message, you will see which programs can display this message (T=Teacher, S=Student, G=Grader). After each message, you will find the various buttons offered by the message and a discussion of the message's purpose and your alternatives. If you're still puzzled after reading about a certain message, contact Techware's Product Support staff (see *Service and Support*).

- *The keyboard's role with dialog boxes.* Certain keys are associated with buttons in all messages, i.e. pressing Return is always a substitute for clicking the OK button, and pressing Escape is always a substitute for clicking Cancel. In other cases, pressing Return is the substitute for clicking the Copy, Move, and Save buttons. When messages require yes and no answers, typing "Y" and "N" are always equivalent to clicking the Yes and No buttons. Finally, in disk related dialog boxes, the Tab key is the substitute for clicking the Disk button.

T

***Some number* button(s)/field(s) link(s) to page(s) *some number – some number*. What should the new destination be?**
[OK/Cancel] Before removing one or more pages, you can easily redirect all buttons that link to it. Type in a page number or stack name and choose OK. Choose Cancel to cancel removing pages.

S

***Student name* scored *some number*% on the stack "*stack name*", answering *some number* right out of *some number* question(s).**
This is the printout of the student's score on the stack.

T

Add in which stack?
[Disk/Open/Cancel] Choose a stack to append to the end of the current stack. Use *The Teacher's Reference* for help with this dialog.

G

Add which score file?
[Disk/Open/Cancel] Choose a score file to merge with the current score file. Use *The Grader's Reference* for help with this dialog.

T S G

Another type of file has this same name.
[Cancel] There is another file on the disk which is not a stack or score file, so you can not replace it. Choose Cancel and then choose a different file name.

T S G	**An unexpected error (#*some number*) occurred.** [Cancel] A rare ProDOS error occurred. This might indicate a program or memory problem. Please write down the error ID number before choosing Cancel, and then contact Techware's Product Support staff (see *Service and Support*).
S	**Are you sure you want to quit the STUDENT now?** [Yes/No] Choose Yes to quit the Student program, or choose No to stay in the Student program.
T	**Choose a picture to import** [Disk/Open/Cancel] Choose a picture file to import. Use *The Teacher's Reference* for help with this dialog.
T G	**Choose a printer:** [OK/Cancel] Select a printer from the list by clicking it. You can scroll the list with the arrow keys or buttons. Type a number from 1 to 7 to change the slot in which the printer interface card resides. Choose OK after you're done, or choose Cancel to keep the old printer settings. You can save your printer settings on disk with the Preferences... feature.
T	**Choose a vocabulary table** [Disk/Open/Cancel] Choose a vocabulary table on the Echo or Cricket software disk. Look for the file called "TABLE". Use *The Teacher's Reference* for help with this dialog.
T	**Choose a word or sound to import:** [Paste/Cancel] You have opened a file of digitized words and sounds. Choose one to be imported into the stack. Use *The Teacher's Reference* for help with this dialog.
S	**Choose your name:** [OK/Cancel] The names of students on the class roll should appear. Select your name and choose OK, or choose Cancel to cancel opening the stack.
T	**Copy from which page?** [Copy/Cancel] Type in the number of a page whose contents you want to add to the current page, and then choose Copy. Choose Cancel if you decide not to copy a page.
S	**Could not write to the score file for this stack. Try again?** [Yes/No] Is the correct disk in the drive? Is the drive door closed? Is the disk write-protected? Is the score file on the disk locked? If the disk was in, and if the disk drive made 'grunting' sounds, the disk may be damaged. Choose Yes to try again, or choose No to ignore scoring on disk.
T S G	**File names have letters, digits, periods, or spaces.** [Cancel] When naming a file, use only letters (A-Z or a-z), digits (0-9), periods (.), and spaces ( ). File names must begin with a letter (A-Z or a-z) and can not exceed 15 characters. Choose Cancel and try again.

T **Freehand drawings can not be changed between color and black and white.**
[Cancel] This has to do with the way color is displayed on a monitor. You can change the color of a color freehand drawing, but in order to change between color and black&white or vice versa, you will need to redraw the freehand drawing. Choose Cancel and try again.

G **Grade Quotas**
[OK/Cancel] Change the grade quotas of the grades A, B, C, D, and F by typing the new percentages. The five percentages must add up to 100%. Use the up and down arrow keys to move between quotas. Choose OK when the quotas are correct, or choose Cancel to leave the quotas the way they were.

G **Grade Ranges**
[OK/Cancel] Change the upper and lower bounds of the grades A, B, C, D, and F by typing the new percentages. The upper bounds are automatically updated to match the next range's lower bound. Use the up and down arrow keys to move between ranges. Choose OK when the ranges are correct, or choose Cancel to leave the ranges the way they were.

G **Grader Preferences**
See Preferences

T **Import picture dialog**
[Paste/Cancel] The picture you see is miniaturized. Drag a selection box around the portion of the picture you want to paste into your stack. Use *The Teacher's Reference* for help with this dialog.

T **In a range of pages, the last page number should be the largest.**
[Cancel] When you enter a range of page numbers, the lower one goes first and the higher one goes second. Choose Cancel and try again.

T **Lines must have some visible line type.**
[Cancel] You were drawing a line which would be completely invisible, because the line type was set to 'no line'. Choose Cancel, choose a line type other than 'no line' on the Line menu, and try again.

T S G **Make sure the printer is ready and the paper is loaded.**
[Begin/Cancel] Check if the printer is ready and choose Begin. If you've changed your mind about printing, choose Cancel. During printing, you can pause or cancel by clicking the button on the hand control or pressing any key.

T **Memory is full. The last change cannot be completed. Try linking stacks.**
[Cancel] You have reached the limit of memory. But don't panic. You can link stacks together in a 'chain' by having a button in the first stack link to the next stack. Choose Cancel and look up *Linking stacks* in *The Teacher's Reference*.

T | **Memory is limited. Discard the clipboard's contents?**
[Discard/Cancel] You are near the limit of 32K. If you discard the contents of the clipboard, your last action will be completed. If the clipboard has valuable items in it, choose Cancel. If not, choose Discard and continue developing the stack, but consider linking stacks soon (see *Linking stacks*).

T | **Note: Buttons and fields will have no effect on a motivation page.**
[OK] You have put a button or field on a motivational page. This type of page is only seen fleetingly after correct student responses, on the way to the *true* destination. A button or field on this page is only ornamental. Choose OK and, if it was a mistake, choose Undo to remove the unneeded button or field.

T | **Oops! A destination is either a page number or a stack's name.**
[Cancel] A page number is a number from 1 to 250, only containing the digits 0 to 9. Stack names must begin with a letter (A-Z or a-z), and contain only letters (A-Z or a-z), digits (0-9), periods (.), and spaces ( ). Choose Cancel and try again.

G | **Open which score file?**
[Disk/Open/Cancel] Choose a score file to open. Use *The Grader's Reference* for help with this dialog.

T | **Open which stack?**
[Disk/Open/Cancel] Choose a stack to open. Use *The Teacher's Reference* for help with this dialog.

S | **Page number *some number* does not exist in this stack. Tell your teacher.**
[Cancel] Either the stack is missing a page, or a button has the wrong page number destination. Remember what page of the stack was being presented when the error appeared and, if possible, which button was chosen. Choose Cancel and correct the button with the Teacher program.

T | **Page number *some number* was not created yet. Can't link there now.**
[Cancel] While previewing a stack, you clicked a button whose destination is the number of a non-existent page. Choose Cancel, and then correct the button or add the missing page.

T | **Page numbers in this stack range from 1 to *some number*.**
[Cancel] The page number you typed was less than 1 or greater than the highest page number in the stack. Choose Cancel and try again. If you want to create a new page after the last page in the stack, choose Go to last on the Page menu and then choose Add after on the Page menu.

T S G | **Path names have letters, digits, and periods. Use slashes between levels.**
[Cancel] When typing a path name (directory or sub-directory names), use only letters (A-Z or a-z), digits (0-9), and periods (.). Directory names must begin with a letter (A-Z or a-z), and can not exceed 15 characters each. A path name is a series of nested directory names separated by slashes (/) with no spaces. An

example of a valid path name is "/MY.DISK/MY.STACKS/". Choose Cancel and try again.

G **Percentages are numbers between 0 and 100. Quotas must add up to 100%.**
[Cancel] The quota percentages must add up to 100%. Choose Cancel and then retype the quotas.

G **Percentages are numbers between 0 and 100. Ranges can not overlap.**
[Cancel] The lower bound of a range must be less than the lower bound of the range above it. Choose Cancel and try again.

T G **Personalize your Teacher/Grader disk; type your organization's name.**
[Onward] This message only appears the first time you run the software. Type your name, or school name, or company name—whichever is appropriate—and repeat for the other disks. What you type in here will appear on the front screen every time the software starts up. Choose Onward to continue. Afterward, you should make working copies of the original disks, and store the originals away in a safe place.

S **Please choose a stack before you choose a student.**
[Cancel] Choose Cancel and then click the icon of a book to open a stack first. The stack must be chosen before the class roll of student names can be displayed.

S **Please choose a stack first.**
[Cancel] Choose Cancel and then click the icon of a book to open a stack first. The stack must be chosen before it can be presented.

S **Please choose both a stack and a student first.**
[Cancel] Choose Cancel and then click the icon of a book to open a stack first. Then, choose your name from the class roll or type it in. The stack must be chosen and the student identified before the stack can be presented.

T S G **Please insert the Teacher/Student/Grader program disk.**
[OK] The program disk is needed again in the disk drive. Put in the same program disk with which you started up and choose OK.

T **Please select part of the painting before clicking the Paste button.**
[Cancel] Before you can Paste a part of this painting, you need to drag a selection box around the desired part of the painting. Choose Cancel and try again.

T G **Preferences**
[Disk/Read/Write/Done] This dialog is for setting up and saving preferences such as the startup prefix and file, the exiting prefix and system, the score file directory, and the virtual RAM prefix. Type in the text fields and use the up and down arrow keys to move between text fields. Choose Disk to select another preferences file (i.e. Student.Prefs). Choose Read to display the preferences on the disk. Choose Write to save the new settings and printer choices on disk. Choose Done when finished. Use *The Teacher's Reference* and *The Grader's Reference* for the meanings of specific text fields.

T S G	**Printing has paused. Do you want to continue printing?** [OK/Cancel] You have clicked the button on the hand control or pressed a key to pause printing. Choose OK to continue printing, or choose Cancel to stop printing.
T	**Remove which page(s)?** [Remove/Cancel] Type in the range of page numbers you wish to remove from this stack. If you want to remove only one page, type its number in the first box. Choose Remove if you are sure you don't need these pages, else choose Cancel.
T G	**Replace existing "*file name*" ?** [Yes/No] A file on the disk already has that name; it could be a stack, a score file, or another type of file. If you want to replace that file with your new file, choose Yes. If you still need the file on disk, choose No and supply a different file name.
T G	**Save changes to "*file name*"?** [Yes/No/Cancel] You have made some changes to the current stack or score file. Choose Yes to save it on disk, or choose No to abandon the changes. To leave the file open with its changes, choose Cancel.
G	**Save scores as:** [Disk/Save/Cancel] Type a file name under which you want your score file saved. Use *The Grader's Reference* for help with this dialog.
T	**Save stack as:** [Disk/Save/Cancel] Type a file name under which you want your stack saved. Use *The Teacher's Reference* for help with this dialog.
T	**Shapes must either have a visible line type or be filled.** [Cancel] You were drawing a shape which would have been completely invisible, because the line type was set to 'no line'. Choose Cancel, and then choose a line type other than 'no line' on the Line menu, or choose a fill pattern or fill color, and try again.
T G	**Slot numbers range from 1 to 7, inclusive.** [Cancel] The printer interface card is plugged into one of seven slots in your Apple II. Usually it is in slot 1, but you should choose Cancel and open your Apple II's cover and check (power *off* first!).
T S G	**Sorry, a system error occurred. ID = *some number*** [Restart] A serious error with the program or with memory occurred. Please write down the error ID before choosing Restart, and then contact Techware's Product Support staff (see *Service and Support*).
S	**Student Preferences** See Preferences
T	**Teacher Preferences** See Preferences
T	**That is not a page number. Type only digits 0 to 9.** [Cancel] Use only the digits 0 to 9 when typing page numbers, use the space bar, if necessary, to erase any stray characters. Choose Cancel and try again.

T S G **The card in slot *some number* was not recognized as a printer interface card.**
[Cancel] The printer cards that are recognized include the Grappler+, the MicroTek RV611, and all true serial cards. Choose Cancel and make sure you have indicated the correct slot number in the Choose Printer... dialog box (if you are using the Student program, you can use the Teacher program to change Student printing preferences). Usually the card is in slot 1, but you should open your Apple II's cover and check (power *off* first!). If the slot number is correctly indicated and your printer card is still not recognized, contact Techware's Product Support staff (see *Service and Support*).

T S G **The disk "*disk name*" had an I/O error.**
[Cancel] Is there a disk in the drive? Is it right side up? Is the drive door closed completely? Is your disk formatted? Is the drive properly connected to your computer? Choose Cancel and try again. If the answer eludes you, remove the disk from the drive, put it back in, and try again. If the problem persists, you may need to reformat it (first attempting to salvage any valuable programs or information).

T S G **The disk "*disk name*" is damaged.**
[Cancel] Remove the disk from the drive, put it back in, choose Cancel, and try again. If the problem persists, you may need to reformat the disk (first attempting to salvage any valuable programs or information).

T S G **The disk "*disk name*" is full.**
[Cancel] There is not enough room on the disk to save your file. Choose Cancel and put in another disk with more room on it, or type the name of an old version of your file and replace it. Later, you may want to use a filing program to delete unneeded files.

T S G **The disk is write protected or the file is locked.**
[Cancel] Choose Cancel and check if the disk's write protect notch is covered. If so, and if you don't mind changing the contents of the disk, remove the write-protect sticker and try saving again. If not, the file you tried to replace was locked. Either choose a different file name or use a filing program to unlock the file (turn off its software write-protection).

T S G **The file "*file name*" could not be found.**
[Cancel] Did you remove the disk from the drive? Or put in a different disk? Did you set Preferences... to automatically load a stack or score file which isn't there now? Choose Cancel and try again.

T S G **The file "*file name*" could not fit in memory.**
[Cancel] The file was unexpectedly big. Normally, this happens when you choose a big file that is not really a stack or score file. Tutor-Tech can't even load it completely to see what it is. Choose Cancel and check the file name again.

G	**The Grader only supports 191 students in memory. Try dividing class rolls.** [Cancel] Your class is very big. Choose Cancel and, to divide the class roll, save it twice under the same name, but on different disks. Delete some of the names in the first file, and the rest in the second file. The two parts of the class will use the same stack but different score files.
T	**The picture selection is too wide. Reselect or check Condensed width.** [Cancel] If your selection had been pasted on the page, it would not have fit. If you check the Condensed width option, it entire selection would fit because it would be reduced in width by one-half. Choose Cancel and either select a new portion of the picture or choose the Condensed width option.
G	**There are no students to save.** [Cancel] Score files must have at least one student on the class roll. Choose Cancel, click the icon of the two students, click the New Name button, and begin typing student names. Then you can save the score file.
T	**There is nothing left to undo on this page.** [Cancel] Undo removes the last item put on the page. Since there are no items on the page, there is nothing to undo. Choose Cancel and continue work.
S	**The score file for this stack could not be read. Try again?** [Yes/No] Is the correct disk in the drive? Is the drive door closed completely? If the disk was properly inserted in the disk drive and the disk drive made 'grunting' sounds, the disk may be damaged. Choose Yes to try again, or choose No to ignore scoring on disk.
S	**The score file for this stack is damaged. Try again?** [Yes/No] The score file for this stack is either severely damaged or it is not a score file at all. Recreate it with the Grader program. Choose Yes to try again, or choose No to cancel scoring on disk.
T	**The slot should be a digit from 1 to 7 for Echo or a "C" for Cricket.** [Cancel] Choose Cancel and enter a digit, 1 to 7, indicating the slot where the Echo card plugs into the Apple IIe or IIGS. Or, if you have a Cricket plugged into your Apple IIc, enter the letter C.
T G	**The Teacher/Grader program requires a mouse or a joystick. Press RETURN.** [Quit] Is the mouse card firmly plugged into a slot? Or is the joystick correctly plugged into the game port? Choose Cancel and, if you like, open your Apple II's cover and check things out. *Shut off the Apple II before touching any interface cards or checking any plugs.*
T	**The two stacks combined have more than 250 pages.** [Cancel] The total number of pages in both stacks exceeds 250; they can't be combined into one stack. You can, instead, link a button in the first stack to the name of the next stack. Choose Cancel and look up *Linking stacks* in *The Teacher's Reference.*

T
This button links to what destination?
[OK/Cancel] Type the page number or stack name where a response should lead. Choose OK to place the button, or choose Cancel to cancel placement.

T
This field links to what destinations?
[OK/Cancel] Type the page numbers or stack names where right and wrong responses should lead. The first destination is if the student is correct. The second is if the student is incorrect. Press the up and down arrow keys to move between text fields. Choose OK to place the field, or choose Cancel to cancel placement.

T S
This is an old Tutor-Tech stack. It will be converted in memory.
[OK] The stack was created with an earlier Tutor-Tech version 1.x. Choose OK to convert it in memory to a version 2.x stack. This process should not take more than a few seconds. When you save this stack, it will be in 2.x format from then forward.

T S G
THIS IS NOT AN APPLE IIE, IIC, OR IIGS
[no buttons] Tutor-Tech uses the features of the modern Apple II. It will work on the Apple IIe (unenhanced or enhanced), the Apple IIc (unenhanced or enhanced), and the Apple IIGS's. The older Apple II and Apple II+ must be upgraded to support Tutor-Tech.

G
This is not a Tutor-Tech score file.
[Cancel] The file you just attempted to open is either a severely damaged score file or not a Tutor-Tech file at all. Choose Cancel and try again.

T S
This is not a Tutor-Tech stack file.
[Cancel] The file you just attempted to open is either a severely damaged stack or not a Tutor-Tech file at all. Choose Cancel and try again. If you're sure it is one of your stacks, a memory chip in your computer has probably gone bad. The question becomes if it went bad when you were saving the stack last (the stack may then be irretrievable), or if it went bad just now (the stack may still be OK on the disk). It may be the latter case if you can open the stack successfully on another computer.

T
This is the last page in the stack. A new page will be created.
[OK/Cancel] You have gone past the last page. Choose OK to add a new blank page at the end, or choose Cancel to stay on the last page.

T
This should not link to a motivational page. Please correct this.
[Cancel] While previewing a stack, you encountered a button or field whose destination is the number of a motivational page. This isn't proper, because motivational pages are picked at random and displayed briefly whenever the student (using the Student disk) gives a correct response. Choose Cancel and either change the destination of this button or field to the number of a normal page or, if its destination is correct, move to that page and make it a normal page type (somehow it became a motivational page type).

T

This stack has 250 pages. No more can be added. Try linking stacks.

[Cancel] You have reached the limit of 250 pages. But don't panic. You can link a button in the first stack to the name of the next stack. Choose Cancel and look up *Linking stacks* in *The Teacher's Reference*.

T S G

Tutor-Tech had difficulty loading

[no buttons] While starting up, Tutor-Tech could not find or read the Tutor-Tech program file. If the disk drive made 'grunting' sounds, the disk may be damaged. If you are running from a hard disk, refer to *Copying your software* in the *Introduction* to make sure all the files have been copied correctly. Reboot the computer and try again.

T S G

Tutor-Tech requires 128K of memory

[no buttons] You need to install an Extended 80 Column Card or Apple Color Card; these cards have the extra 64K needed to bring the computer's total memory up to 128K. *Shut off the Apple II before touching any interface cards or checking any plugs.*

T S G

Tutor-Tech requires an 80 Column Card or an Apple Color Card

[no buttons] You need to install an Extended 80 Column Card or Apple Color Card; Tutor-Tech relies on one of these cards to support its use of double hi-resolution graphics. *Shut off the Apple II before touching any interface cards or checking any plugs.*

T S G

Tutor-Tech stack names can only be 8 characters in length.

[Cancel] You have chosen a file that may not be a Tutor-Tech stack or score file. If it is, and you renamed it earlier using a file utility program, rename it back to some file name with 8 characters or less. Choose Cancel and try again.

T S

Type your whole name:

[OK] The stack you are about to use makes use of variables which will incorporate the student's name into the stack. Since the stack is not being scored, the student's name can't be found in a class roll. Therefore, the student's whole name will be required before the stack can begin. Type your whole name and choose OK.

T

Unable to use the virtual RAM disk specified in the Preferences dialog box.

[OK] The virtual RAM disk whose name you specified in the Preferences dialog box cannot be found. First, check that you spelled the name correctly in the Preferences dialog box. On an Apple IIe, RAM disks sometimes do not format automatically when the computer is turned on. You may have to format it manually with a disk utility program (although this is not convenient each time you want to use Tutor-Tech). On an Apple IIGS, check the Control Panel settings for the RAM disk; its memory size should be set to more than zero K. If neither of these points help, check that the memory card is still in your computer (*power off first!*). Choose OK; if you correct the problem, you will need to reboot to use the virtual RAM disk.

T G | **Unlock and replace existing "*file name*" ?**
[Yes/No] A locked file on the disk already has that name. If you want to unlock the file (turn off its software write-protection) and replace it with your new file, choose Yes. If you still need the file on disk, choose No and supply a different file name.

T S G | **Version dialog**
[OK] This dialog tells you the version and release date of the software, the copyright notice, the credits, and your unique serial number. Choose OK and continue work.

T S G | **Welcome to Tutor-Tech**
[no buttons] This message is displayed while the program is loading. Your personalization message and serial number appear with the credits for the software.

T | **What is the new page number for this page?**
[Move/Cancel] Type in the new page number of this page. Choose Move to relocate this page in the stack, or choose Cancel if you decide not to move this page.

S | **Which stack do you want?**
[Disk/Open/Cancel] Choose a stack to open. Use *The Student's Reference* for help with this dialog.

T | **You are on the first page of the stack; there are no previous pages.**
[Cancel] You are on page 1; there are no pages before this page, so clicking the left page arrow is fruitless. Choose Cancel and try again.

S | **Your name is no longer on the class roll. Try another disk?**
[Yes/No] For some reason, your name has disappeared from the class roll since you began the stack. Did you switch disks? Choose Yes to search for your name again. Choose No and your score will not be recorded on disk.

S | **Your name is not on the class roll for that stack. Try another disk?**
[Yes/No] You have linked to another stack, but your name is not on the class roll which was paired with the second stack. Choose Yes to try another disk, or choose No and, later, use the Grader program to change the second stack's score file. In the future, stacks, which are linked together *and* meant to be scored together, need the same score files. After all, a student that uses one of the stacks may, through linking, use one of the other stacks in the chain.

S | **Your score is *some number*%. You answered *some number* right out of *some number* question(s). Send scores to printer?**
[Yes/No] This is the student's score on the stack; it pops up if you have not set up a score file with the Grader disk. The option to print out is offered so that students can produce evidence of their effort. Choose Yes to print this score out, else choose No.

APPENDIX G: Software compatibility

1 Hand controls

The hand controls that are compatible with the Teacher, Student, and Grader programs are:

- ✓ An Apple mouse
- ✓ An Apple joystick
- ✓ Apple game paddles
- ✓ A Koala Pad™
- ✓ A Touch Window™

Important

If you are using paddles, a joystick, a Koala Pad, or a Touch Window, the primary button on the hand control is pressed to click and drag. The secondary button on the hand control doubles for pressing the Option key (⌥) on the keyboard

What about the Command key? The primary button on each of the above hand controls doubles for the Command key on the keyboard. Thus, you will *not* be able to use the Command key (⌘) for layered selection (see *The Teacher's tools*) or for menu short cuts (see *The Teacher's menus*). *Use the Control key instead for short cuts, or hold down the Control key and press minus ("–") to simulate a command key on the next key press or click.*

2 Printers

Tutor-Tech is compatible with the following printers. If your printer is not on this list, please contact Techware's Product Support staff (see *Service and Support*). We will try to add your printer to the list and send you the updated software at no cost.

- ✓ Anadex Printers
- ✓ Apple Dot Matrix
- ✓ ImageWriter I/II
- ✓ ImageWriter color
- ✓ Citizen MSP-10
- ✓ C. Itoh 8510
- ✓ DMP 85
- ✓ Epson RX-80
- ✓ Epson RX/MX/FX
- ✓ NEC 8023
- ✓ Okidata 82A/83A
- ✓ Okidata 84
- ✓ Star Gemini

Tutor-Tech is Swap-Optimized™. That is to say, when you boot up the computer with the Teacher disk, most of the software loads into the computer. Your computer won't require that you swap disks anymore during that session... unless you import artwork or speech, or preview a stack.

However, if you have an Apple IIGS® or an extended RAM card, you can set things up so that your computer won't require the disk anymore that session. Period.

- *Owners of only one disk drive:* This is for you! If you have more than 128K of RAM, this new feature will let you to boot the computer with the Teacher disk and then, for the rest of the session, you can leave your stack disk in the drive.
- *Advanced users:* This new feature turns your extra RAM into a virtual disk. While booting the Teacher disk, a file called "TEACHER.VIRTUAL" will be created in the RAM disk.

To set things up, you'll need the name of the RAM disk. Refer to one of the following two sections (depending on which computer you have), and then proceed to the next page.

Preparing your Apple IIe or IIc

If you use the Teacher program on an Apple IIe or Apple IIc, you need to find the name of your RAM disk. This is usually "/RAM" followed by the number of the slot containing the card.

For example, if the extended memory is in slot two, the RAM disk should automatically be named "/RAM2".

Preparing your Apple IIGS

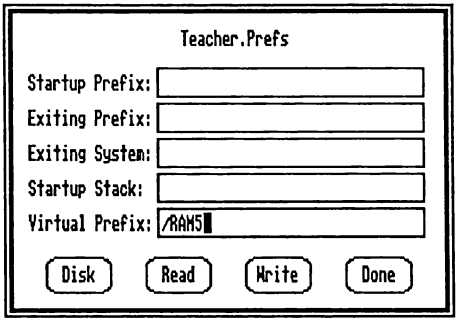
If you use the Teacher program on an Apple IIGS, you need to set up a RAM disk with the IIGS Control Panel. Allocate at least 64K to the RAM disk.

A RAM disk on a IIGS is usually named "/RAM5". If you are unsure how to use the Control Panel, see your *Apple IIGS Owner's Guide*. You call up the Control Panel by holding down the Control key and the Command key (⌘), and then pressing the Escape key.

■ Setting up Tutor-Tech

Once you know the name of your RAM disk, setting up Tutor-Tech is easy. You just type this name into the preferences. Here's how:

1) Start up your computer with the Teacher disk;
2) Choose Preferences... on the Special menu;
3) Press the down arrow key four times;
4) For "Virtual Prefix", type the name of the RAM disk;
5) Click the Write button;
6) When the disk drive light blinks off, click the Done button.



The Preference will take effect the next time you start up the computer with this Teacher disk. If you decide to change this preference, just follow the above procedure and enter a different RAM disk name (or no name for no preference).

■ Messages and Troubleshooting

If, while starting up, the RAM disk cannot be found, you will be informed: **Unable to use the virtual RAM disk specified in the Preferences dialog box.**

You can still use Tutor-Tech normally, but as things stand, the RAM disk cannot be used. Click the OK button and consider:

✓ Does this computer have a RAM disk?
✓ (On an Apple IIGS) did you create the RAM disk?
✓ Did you type the exact RAM disk name into the preferences?

If you haven't a clue, try reformatting your RAM disk with a utility program (use the Volume Format feature). Then, quit the utility and launch the Teacher program directly (without rebooting). If that doesn't work, contact us. We're here to help you.

Tutor-Tech works with most popular videodisc players.

Your stacks are no longer limited to the Apple's screen. Your stacks can send commands to a videodisc player at the same time the stack is being presented on the main screen.

An introduction to videodiscs

Imagine for a moment an Apple II computer with two screens.

The first screen sits on the computer and it's the Apple's standard screen. That's where your stack appears.

The second screen sits beside the computer. It's a bright, colorful screen capable of displaying life-like, full-color pictures. It is connected to a videodisc player, which supplies the pictures (like a cassette player supplies sound). The computer sends commands to the videodisc player which show frames, play movies, and even control stereo sound.

You can already see where this leads. Your stack can now be presented on two screens, and the second screen can display full-color images (still frames and live-action movies) to help your presentation.

Compatibility

Tutor-Tech supports the **LaserVision** industry standard. It will work with the Pioneer® LD-V2000 and LD-V4200 videodisc players and their compatibles, which bear the LaserVision symbol.

"The LaserVision mark certifies compatibility with other laser optical video products bearing the mark."

Most videodisc players are compatible with the Pioneer LD-V4200 or the less sophisticated LD-V2000. The Apple II communicates with the LD-V4200 through a serial card and cable, whereas the LD-V2000 usually receives its commands through a cable connected to the Apple II's gameport. If you need more information on connecting your videodisc player to your computer, or if you need cables, you may want to contact these companies.

Pioneer Communications
600 East Crescent Avenue
Upper Saddle River, NJ 07458
Phone (201) 327-6400

Optical Data Corporation
30 Technology Drive
Warren, NJ 07060
Phone (201) 668-0022

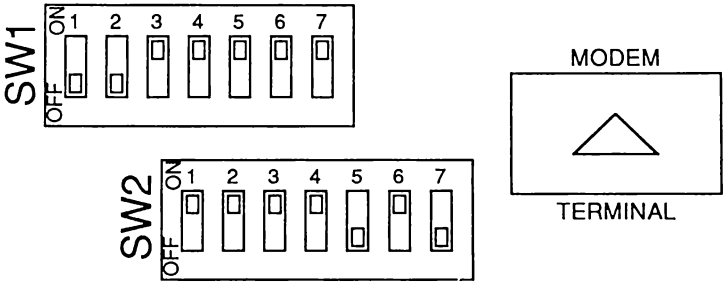
If your Apple computer already controls the videodisc player successfully with other software, you need read no further. Proceed directly to *How commands are entered.* Otherwise, refer to one of the two following sections (depending on which Apple computer you have), and then proceed to *How commands are entered.*

■ Connecting an Apple IIe to a videodisc player

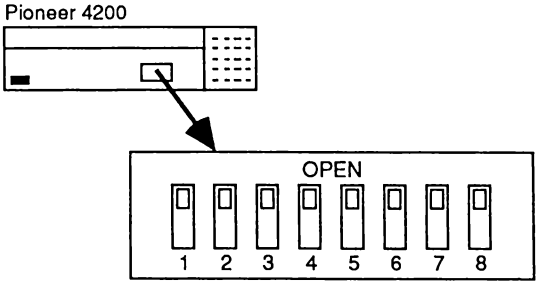
LD-V4200

To connect a IIe to a Pioneer 4200 or compatible, you only need a standard serial cable to connect the IIe's Super Serial Card to the 4200's interface.

Check the Super Serial Card in the IIe (power *off* first!). Make sure the dip-switches on the card are set as shown below.



Open the function box on the face of the 4200. Set the eight dip-switches as shown below, all in the "UP" position.



LD-V2000

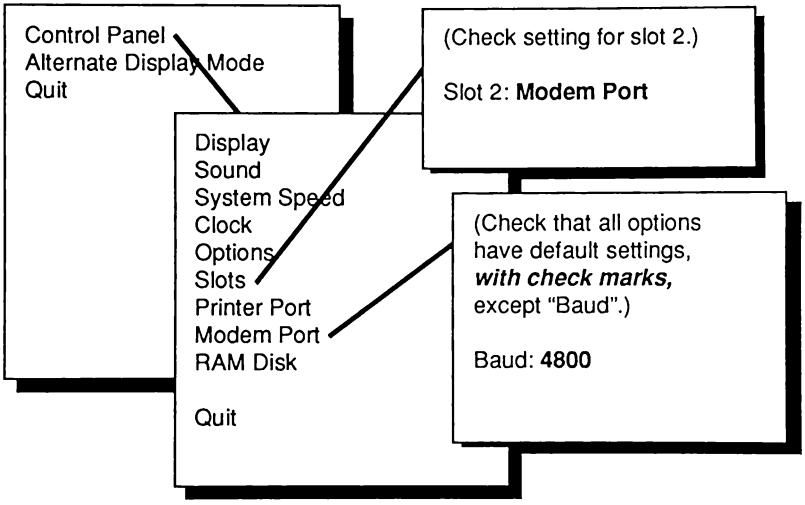
To connect a IIe to a Pioneer 2000 or compatible, you only need a cable to connect the IIe's gameport to the I/O port on the 2000.

■ Connecting an Apple IIGS to a videodisc player

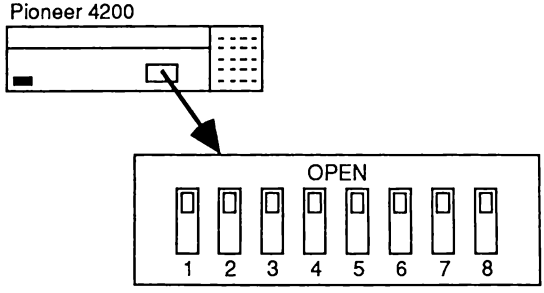
LD-V4200

To connect a IIGS to a Pioneer 4200 or compatible, you only need a standard serial cable to connect the IIGS's Modem Port to the 4200's interface.

Check the Control Panel on the IIGS. To get into the Control Panel, hold down ♂ and Control, and press Escape. Then, set up the features as shown below.



Open the function box on the face of the 4200. Set the eight dip-switches as shown below, all in the "UP" position.



LD-V2000

To connect a IIGS to a Pioneer 2000 or compatible, you only need a cable to connect the IIGS's gameport to the I/O port on the 2000.

■ How commands are entered

Videodisc commands are easy to enter. You use the Text tool and type the commands directly on a page, just like regular text. And just like regular text, you can edit and delete them.

Usually, a page has one videodisc command on it. This command will be sent to the videodisc player when the page is presented. When the videodisc player finishes doing its thing—and only then—can the user respond to buttons on the page.

Videodisc commands are distinguished from other lines of text by the **address**, which precedes each command. The address is the location of the videodisc player, that is, where it is connected to the computer. The address consists of a bullet "•" character, the slot number or another character, and another bullet character. (A bullet is typed by holding down the Option (⌥) key and pressing "8".)

When you are developing your stack, you will see the text commands on the page. However, when a student uses your stack, or when you preview it, the commands will be performed *and not drawn on the page.*

Now refer to one of the two following sections (depending on which videodisc player you have), and then proceed to *Tips on entering commands.*

■ Sending commands to a Pioneer LD-V4200

The Pioneer LD-V4200 and compatible videodisc players connect to the Apple computer through a serial card and cable. The serial card plugs into a slot (1-7); therefore, the address of the videodisc is a bullet, the slot number, and another bullet (i.e. •2•).

The text following the address is the command string. For example,

```
•2• 15000SE 15600PL
```

This command string will send (via slot 2) the commands "search for frame 15000 and play the movie through frame 15600".

Your videodisc player's owner's manual should describe what commands the computer can send. The letters follow the LaserVision command set as defined by Pioneer Corporation, which is reprinted on the next page for your convenience. You can put extra spaces between your commands to organize them; spaces are ignored.

LASERTALK 4200 COMMAND SET

Category	*Letter*	*Function*
SEARCH	FR	Enter a frame number (CAV discs)
	CH	Enter a chapter number
	TM	Enter a time address (CLV discs)
	n SE	Search for frame or chapter "n"
	n SM	Set the automatic stop marker to frame or chapter "n"
STEP	SF	Step forward one frame
	SR	Step backward one frame
PLAY	(n) PL	Play forward at normal speed (60 frames/sec) until "n"
	(n) MF	Play forward at special speed (use SP) until "n"
	(n) MR	Play backward at special speed (use SP) until "n"
	n SP	Set special playing speed ("n"=0 for normal speed)
SCAN	NF	Scan forward (about 500 frames per second)
	NR	Scan backward (about 500 frames per second)
AUDIO	0AD	Turn audio off
	1AD	Use the left audio only
	2AD	Use the right audio only
	3AD	Use stereo audio (both left and right)
DISPLAY	0DS	Switch display generator off
	1DS	Switch display generator on (then use RA and PR)
	0RA	Turn address display off
	1RA	Display frame number
	2RA	Display chapter number
	3RA	Display frame and chapter numbers
	4RA	Display your text
	5RA	Display your text and frame number
	6RA	Display your text and chapter number
	7RA	Display your text and frame and chapter numbers
	CS	Clear your text from display
	PR	Print your text on video display
CONTROL	SA	Start disc rotation (first command sent)
	PA	Pause video and blank TV screen
	ST	Still video on screen
	OP	Open videodisc door
	RJ	Reject videodisc
	CL	Clear commands
	0VD	Switch video off
	1VD	Switch video on
	0KL	Turn off key lock so front panel buttons work
	1KL	Turn on key lock so front panel buttons are ignored

LASERTALK 4200 COMMAND SET (continued)

Category	*Letter*	*Function*
WAIT	®	Wait until the player is ready. (To type "®", hold down the Option (⌘) key and press "R")
	©	Wait for a defined amount of time. The "©" is followed by a number, which is the number of frames (sixtieths of a second) to wait. (To type "©", hold down the Option (⌘) key and press "G")

■ Sending commands to a LD-V2000

The Pioneer LD-V2000 and compatible videodisc players connect to the Apple computer directly through the gameport or, in one other specific case, a Poseidon™ card. The address of the videodisc is, therefore, a bullet, either "G" for gameport or "P" for Poseidon, and another bullet (i.e. •G•).

Important

❖ *Apple IIGS Owners:* If you are using a videodisc player through the gameport or Poseidon Card on your IIGS, you must set the system speed to "slow" with the Control Panel. If you are unsure how to do this, refer to your *Apple IIGS Owner's Guide.*

The text following the address is the command string. For example,

•G• F2150 S ® P©100

This command string will send (via the gameport) the commands "search for frame 2150, wait until the player's ready, and then play for a count of 100 ticks" (60 ticks equals one second).

Each command string mimics the buttons you would press on the hand-held remote control. The command letters follow the Laser Talk 2000 command set defined by Optical Data Corporation, which has been reprinted below and on the next page for you. You can put extra spaces between your commands to organize them; spaces are ignored.

LASERTALK 2000 COMMAND SET

Category	*Letter*	*Function*
SEARCH	F	Enter a frame number
	C	Enter a chapter number
	S	Search for the frame or chapter given

LASERTALK 2000 COMMAND SET (continued)

Category	*Letter*	*Function*
STEP	N	Step forward to the next frame
	B	Step backward to the previous frame
	}	Step forward to the next chapter
	{	Step backward to the previous chapter
PLAY	P	Play forward at normal speed
	X	Play forward at special speed (use > and <)
	Z	Play backward at special speed (use > and <)
	>	Increase playing rate a bit
	<	Decrease playing rate a bit
	I	Play forward 3x faster than normal
	U	Play backward 3x faster than normal
	@0	Mark the frame, whose number follows, for autostop
	@1	Mark the chapter, whose number follows, for autostop
	#	Mark the start of a repeat loop (repeat "A" command)
	$	Mark the end of a repeat loop (repeat "B" command)
SCAN	H	Scan forward at fast but inaccurate speed
	G	Scan backward at fast but inaccurate speed
AUDIO	@4	Switch the audio off
	@5	Switch the audio on
	L	Use the left audio only
	R	Use the right audio only
	T	Use stereo audio (both left and right)
	A	Switch between audio modes in rotation
CONTROL	Y	Pause video and blank TV screen
	&	Reject videodisc (stop all actions)
	&&	Reject videodisc and open door
	Q	Clear the entered number or operation
	M	Prepare to enter a chapter program
	.	Chapter or Frame Time mode
	@2	Switch video off
	@3	Switch video on
	@6	Switch display generator off
	@7	Switch display generator on
	D	Toggle frame or chapter number display (on/off)
	%	Toggle CX™ Noise Reduction system (on/off)
	/	Switch TV/LVP
	(	Show computer screen image (for Poseidon Card)
	)	Show videodisc image (for Poseidon Card)
WAIT	®	Wait until the player is ready. (Same as 4200)
	©	Wait for a defined amount of time. (Same as 4200)

Remember that many of these commands mimic a button being pressed on the hand-held remote control. Refer to your videodisc player's owner's manual for more about pressing the remote's buttons and their command sequences.

■ **Tips on entering commands**

The text size and position of videodisc command lines on the page are irrelevant. However, the commands are performed in the order they were put on the page (back to front).

You can use the order of commands to your advantage. For example, you can introduce a videodisc image on the Apple II's screen *before* it appears. Consider such a page with words, pictures, one videodisc command, and a button:

How it was created:	*How it is presented:*
1) Type the words	1) The words are shown
2) Draw the pictures	2) The pictures are shown
3) Type the videodisc command	3) The videodisc activates
4) Add the button	4) The button appears and waits for a response

Another example. Consider a page which introduces a movie, plays it on the videodisc player, introduces a second movie, and plays the second movie. And all this happens without the user responding to any button. How can this be? Here's one way to do this:

How it was created:	*How it is presented:*
1) Type "Watch the first movie..."	1) "Watch the first movie..."
2) Type the videodisc command to play the first movie	2) The videodisc activates and plays the first movie
3) Draw a large rectangle on top of the message in step 1 (the rectangle is filled with white and has no line type)	3) The page becomes blank (it's the large rectangle covering up everything)
4) Type "Watch the second movie..."	4) "Watch the second movie..."
5) Type the videodisc command to play the second movie	5) The videodisc activates and plays the second movie
6) Add a button	6) The button appears and waits for a response

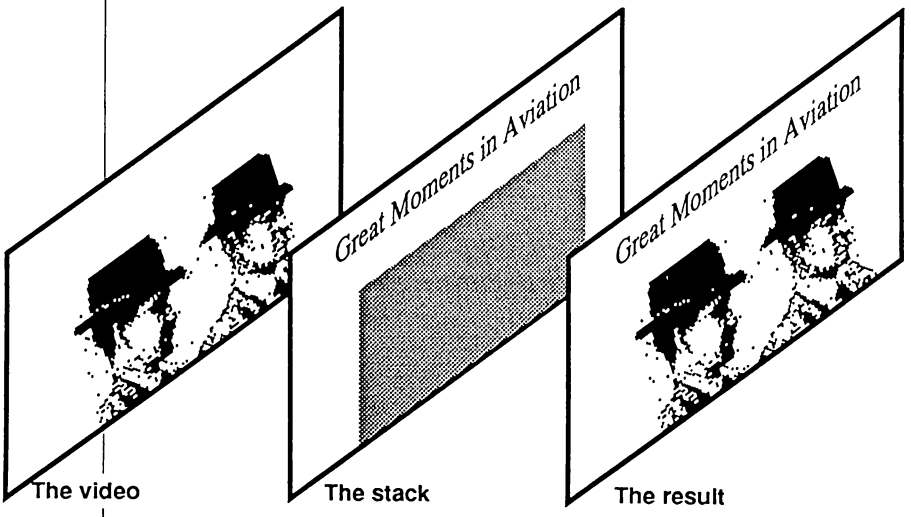
Develop your own ideas!

5 Apple's Video Overlay Card

The Apple II Video Overlay Card breaks the boundary between video and computer images. Now, you can simultaneously display both on the screen of an Apple IIe or IIGS. You can overlay still frame images or live-action videos on the whole screen or just a portion of the screen.

You control the Video Overlay Card in combination with a videodisc player (or another video source). The videodisc player will provide the video images. The Video Overlay Card will overlay the video on the text and graphics in your stack.

To understand how the Video Overlay Card works, you first need to understand **key colors**. The computer is capable of generating many colors on the screen, but you will pick one of those colors to be the key color. Wherever this key color appears on the screen, video images will *show through.*



Therefore, in stacks which use the Video Overlay Card, the key color should only be used where you intend to overlay video images. If that color appears anywhere else, unwanted video will show through.

- *Hint:* Picking a key color can be easy—pick the color you find least pleasing. This color may have otherwise gone completely unused!

■ **Setup**

The Video Overlay Card can be installed in any slot on an Apple IIe or slot 3 on an Apple IIGS. This is a requirement of the card.

Also, before starting, remember to hook up your video source. For extra help, look into the Video Overlay *User's Guide*.

■ **Commands**

You control the Video Overlay Card with command lines like those used to control videodisc players. Command lines are entered as normal text on a page. During development, these command lines are displayed on the page. During presentation, the stack will hide the commands and instead send them to the Video Overlay Card.

When typing a command line, type a bullet "•", a "V", the slot digit if other than slot 3, another bullet "•", and then the actual commands. The Video Overlay driver, which is built directly into Tutor-Tech, will interpret your command line and directly access the Video Overlay Card. The available commands are as follows:

•V•C=RED Sets the key color to one of 16 colors.
See upcoming chart for specific color codes.

•V•K=7 Sets the degree of video overlay for the key color.
Degrees range from 0 to 7 (0% to 100% overlay).

•V•N=0 Sets the degree of video overlay for non-key colors.
Degrees range from 0 to 7 (0% to 100% overlay).

•V•©20 Counts (waits) any number of ticks.
A tick is 1/60 of a second; 20 ticks = 1/3 second.

Remember, the above commands are executed at the moment they would otherwise appear on the screen. For example, if a large red rectangle is drawn on a page before the **•V•C=RED** command is typed, the user of your stack will see a large red box and then the video will blink on. If, on the other hand, the command **•V•C=RED** precedes the rectangle, video will blink on without any sign of a red box. The latter effect may be more desirable.

■ **Optional commands (for Apple IIGS users only)**

The Apple IIGS has the ability to change the color of the screen's border, as well as changing the display between black-and-white

and color viewing. These features are built into the Control Panel (not described here; see your Apple IIGS *Owner's Guide* for details). Now, you can control these features from your stack:

•V•B=RED You can set the border to any color shown below. If set to the same color as is the key color, extra video will overlay all around the screen's image.

•V•T=M Sets the display type to Monochrome (turns color off).

•V•T=C Sets the display type to Color (turns color on).

Note that these settings, if used, will not be saved as Control Panel settings. To return to the previous Control Panel settings, call up the Control Panel and immediately choose Quit (just press Return).

■ Advanced commands

In addition, the Video Overlay Card has five flags which you can enable or disable to improve viewing.

•V•E= Enhanced dissolve.

•V•F= Chroma-crosstalk filter.

•V•G= Genlock; this turns video overlay on or off completely.

•V•S= Setup output for video black level.

•V•X= External video blanking source.

To enable a flag, you set it to **E**; to disable, set it to **D**. Enabling or disabling them may or may not improve your video overlay quality; it depends on your computer setup. For example:

•V•G=E Enable Genlock.
•V•G=D Disable Genlock.

Refer to the Video Overlay Card *User's Guide* and technical notes for specific information on these options.

■ Multiple commands

Command lines can have multiple commands, separated by spaces, dashes, commas, or other delimiters:

•V•C=RED K=0 ©20 K=2 ©20 K=4 ©20 K=6 ©180 K=0

The above command line, in order, sets the key color to red, sets no

overlay, waits 1/3 second (20 ticks), sets the degree of overlay to 2, 4, and 6, with 1/3 second delays between each, waits 3 whole seconds, and turns off the video.

Color codes

The color codes are as follows:

	OFF	No color; no video overlay
Shades	**BLK**	Black
	DGY	Dark Gray
	LGY	Light Gray
	WHT	White
Blues	**DBL**	Dark Blue
	BLU	Blue
	LBL	Light Blue
Greens	**DGR**	Dark Green
	LGR	Light Green
	AQM	Aquamarine
Others	**RED**	Red
	PNK	Pink
	ORN	Orange
	YEL	Yellow
	BRN	Brown
	PUR	Purple

Look into the Video Overlay *User's Guide* for more detailed information. If you can't find what you need, contact us.

6 Sending to other devices

With Tutor-Tech, you can send text and commands to speech synthesizers, and it will pronounce the text and interpret commands. Your stacks can show *and* tell. Or, you can send to a printer or any other device plugged into a slot in the Apple computer. The printer would print out the text.

Important

If you want to print out the pages of your stack, use the Print page... feature on the Special menu. This section discusses, among other things, sending text to a printer *while* a stack is being used.

■ An introduction to other devices

"Speech printer" cards, printers, and other devices will process text sent to them. Special commands are intercepted and interpreted.

Speech synthesizers are a lot of fun, and easy to use! When you want to say "Good morning", you send the words "Good morning". The balance of this section will talk about speech synthesizers specifically, but the concepts also apply to other devices.

■ How commands are entered

You use the Text tool and type what you want said, just like regular text. And just like regular text, you can edit and delete lines.

Usually, a page has one line of speech on it. This line will be sent to the "speech printer" card when the page is presented. When the "speech printer" card finishes speaking—and only then—can the user respond to buttons on the page.

Speech is distinguished from other lines of text by the **address**, which comes at the beginning of the line. The address is the location of the "speech printer" card, that is, where it is connected to the computer. The address consists of a bullet "•" character, the slot number, and another bullet character. (A bullet is typed by holding down the Option (⌥) key and pressing "8".)

When you are developing your stack, you will see the speech on the page. However, when a student uses your stack, or when you preview it, the speech will be spoken *and not shown on the page*.

■ Sending text and commands

Your "speech printer" card plugs into any slot (1-7); the address will be a bullet, the slot number, and another bullet (i.e. •2•).

The text following the address will be spoken or interpreted by the "speech printer" card. For example,

•2• GOOD MORNING

This command will send "GOOD MORNING" to slot 2. If this does not work, a second method works with "output only" interface cards. Just add a "#" character before the slot number on each line,

•#2• GOOD MORNING

❖ *Advanced users:* Commands with a "#" use the BASIC calling convention (like "PR#n"). Commands without a "#" use the Pascal calling convention defined for serial cards. A card's firmware may be compatible with one or both standards.

Your speech card's owner's manual should describe what text and commands can be sent by the computer. To send a special character (for a command) such as a Control-I (ASCII 9), you hold down the Control and Option (apple) keys and type "I". In this case, an integral "∫" symbol will appear to signify the Control-I. All of the special symbols are shown in the *Appendices: The keyboard.*

There are three *special* commands which you should know about:

© waits for a defined amount of time. The "©" character is followed by a number, which is the number of ticks (sixtieths of a second) to wait. For instance, "©120" waits for 2 seconds before sending more text on the line. (To type "©", hold down the Option (apple) key and press "G".)

¬ sends a carriage return character (ASCII 13). (To type "¬", hold down the Option (apple) key and press "L".)

... at the end of the line prevents a carriage return from being sent automatically. This is useful when you want to continue on the next line. Normally, a carriage return character (ASCII 13) is sent at the end of every line. (Note that "..." is an 'ellipsis' character, not three periods. To type "...", hold down the Option (apple) key and press ";".)

■ Tips on entering commands

The text size and position of speech on the page doesn't matter. However, lines are spoken in the order they were put on the page (back to front).

You can address students by name. Variables can be used this way:

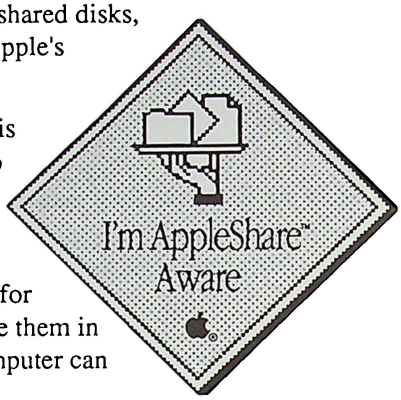
•2• Hello, •First•, how are you?

This greeting would be sent to slot 2. Refer to the section on variables in *The Teacher's Reference.*

Have fun with talking stacks!

APPENDIX H: Networks, AppleShare, and special licenses

Tutor-Tech works on networks, shared disks, file servers, and AppleShare® (Apple's network for Apple computers).



Using Tutor-Tech on a network is ideal, because you won't need to produce copies of the Student disk or your stacks. You can install the Student software and your stacks on the network and, for convenience, you might organize them in a subdirectory. Then, every computer can access your stacks instantly.

If you want to use Tutor-Tech on a network, let us know. We will send you a network license (no additional charge), and we will be eager to help you install Tutor-Tech on your network.

Special licenses

In addition to the standard package, Techware offers a variety of popular licenses to help you make the best use of the computers at your site. Many sites have adopted the following licenses in addition to their standard license (printed on the software envelope):

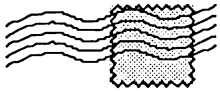
- ✓ *Volume discounts:* If you have more than one site, you may request generous volume discounts when you purchase more than one copy of Tutor-Tech.
- ✓ *Extended Use License:* If your site has a large number of computers (larger than your standard license), a low-cost extended use license would give you the ability to copy the Student disk for all the computers at your site.
- ✓ *Site License:* If more than one person at your site, who wants to create stacks on their own computer, an economical site license gives you the ability to copy the Teacher disk and buy extra manuals as necessary.
- ✓ *District License:* A very popular, low-cost solution for counties which want to develop content-controlled stacks centrally and ship them out to schools. In some cases, this is free; call and find out if you qualify.

If you would like more information on licenses, or if you have a custom license in mind, contact Techware's Product Support staff (see *Service and Support*).

APPENDIX I: Service and Support

Tutor-Tech is backed with Customer Service and Support. If you have questions about the software, the guide, anything!, you can call us, write to us, or send us electronic mail on Apple's world-wide AppleLink™ network.

You can call (407) 695-9000 and ask for Product Support. You will receive answers right on the phone. Our friendly support staff is always available from 9 a.m. to 5 p.m., Eastern Time, from Monday through Friday. You may also call after hours.



You can drop us a line. Send it to: Techware, Post Office Box 151085, Altamonte Springs, Florida 32715-1085 U.S.A. Attention: Product Support.

If you use AppleLink Personal Edition or Corporate Edition, you can link us a memo. On AppleLink Personal, leave the memo in the Tutor-Tech Forum under the Apple II Education Forum. On AppleLink Corporate, send a memo to our address DØ617.

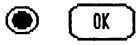
Some things to do before contacting our Product Support staff:

- ✓ If you call us on the telephone, have your software ready and be near the computer if possible.
- ✓ Note which software you were using: Teacher disk, Student disk, or Grader disk.
- ✓ Note your software's version number and serial number, because they completely describe the software and help us diagnose problems quickly. (If you're not sure, choose Version on the Special menu in the Teacher or Grader programs, or click the word balloon in the Student program).
- ✓ Try to isolate the error (i.e. what did I do just before the error struck?).
- ✓ Try to duplicate any error (i.e. what series of events cause the error to recur?).
- ✓ Try to duplicate any error on another computer (this sometimes solves the problem, revealing that hardware is at fault).

If servicing is necessary, you will be directed to return your disks to the factory or to take them to a local Authorized Techware Dealer.

Glossary

boot, booting
To start up a computer. To reboot means to restart a computer as if it had just been turned on (usually by pressing Control-⌘-Reset).



button
Used to link one page, or one specific piece of information, to another page or another stack. Buttons are also used in dialog boxes to collect needed information.

check box
Used in dialog boxes to show if some related options are turned on or off. Clicking a check box will turn an option on and off.

click, clicking
To move the pointer to the appropriate spot on the screen, and then to press and quickly release the mouse button.

cross
A cursor used to position buttons and fields on the page.

crosshair
A cursor used to draw with precision on the page.

default
Information anticipated to be your response to a question.

destination
The page number or stack name to which a button is linked.

dialog box
A Macintosh user interface used by Tutor-Tech on the Apple II when more information is needed. A dialog box displays a message and offers buttons representing your options.

drag, dragging
To move the pointer to the first desired spot on the screen, and then to press and hold down the mouse button until you arrive at the second desired spot on the screen.

drop shadows
Graphics used to simulate a shadow of other items on the screen (look up the Send to back feature in *The Teacher's menus*).

field
Where text is entered in a stack. The response is then evaluated and, whether correct or incorrect, the field links to one of two destinations.

hand control
A peripheral which, in addition to the keyboard, helps control the computer (i.e. a mouse or a joystick).

hypermedia
Information (words and pictures) organized on a computer by association; the user interacts only with desired information. In Tutor-Tech, hypermedia is stored in files called stacks.

I-beam
A cursor used to choose where on the page you want to begin typing.

menu titles
The titles of the menus which are displayed across the top of the screen. Each menu title represents the category of features which are offered on that menu.

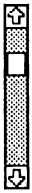
menus
A Macintosh user interface used by Tutor-Tech on the Apple II to present the software's features.

pages
The building blocks of Tutor-Tech stacks, used to assemble words, pictures, buttons, and fields.

pixel
On the screen, a single dot either on (white) or off (black) or in color.

pointer
A cursor used to click tools, pull-down menus, and (when the selection tool is employed) to edit items on the page.

score file
A Tutor-Tech file created with the Grader disk, composed of student names. When paired with a stack, it will track student performance.



scroll bar
A Macintosh user interface which helps you move through a list of items. You can move up or down one or several items at a time.

stack
A Tutor-Tech hypermedia file. Stacks are created with the Teacher disk, page by page; stacks can even control external devices.

tools
Used to create stacks in the Teacher program. Each tool in the toolbox has a particular purpose (i.e. typing, drawing, etc.).

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